COMMODORE

COMPUTING INTERNATIONAL

MEGA ISSUE

AUGUST 1987

MAN DOMINATES MACHINE

COMMODORE SHOW REPORT

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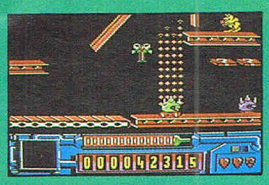
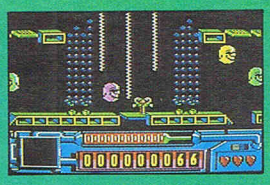
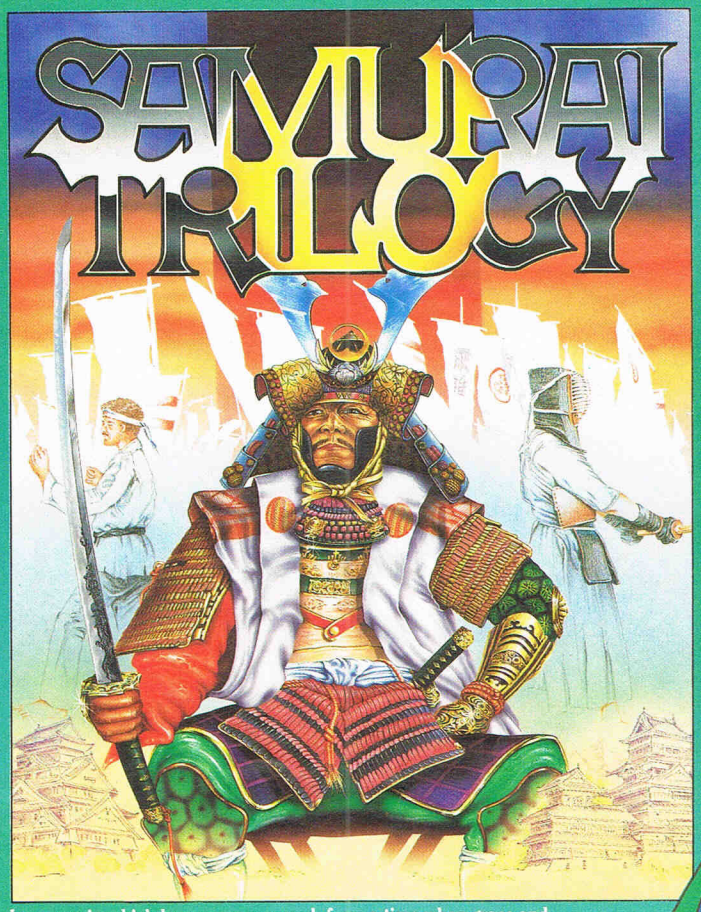




Gremlin's springiest star is set to bounce straight back into a new adventure. Following his world saving exploits against the evil toy goblin and his monstrous toys, Thing's enjoyed his much needed recuperation, oiled his springs and is now raring to go. What next?... he must finish the job properly and halt the factory computer auto producing these hideous toys. A quick hand and dogged determination are needed if you're to get anywhere with Thing in his latest escapade.



In an age in which honour was revered, from a time when grace and beauty were virtues, a class of warriors set themselves apart to dedicate their lives to a perfection in combat that in itself was an artform, to a discipline of mind that became a religion. The attaining of such excellence required an extraordinary diligence in self-denial and training in order to achieve the ultimate accolade 'War Lord'. Kendo, Karate and finally Samurai are the tests that must be mastered before such honour can be bestowed.

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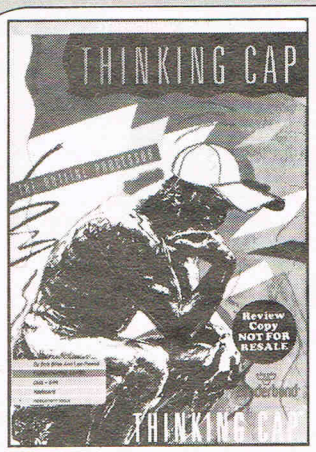

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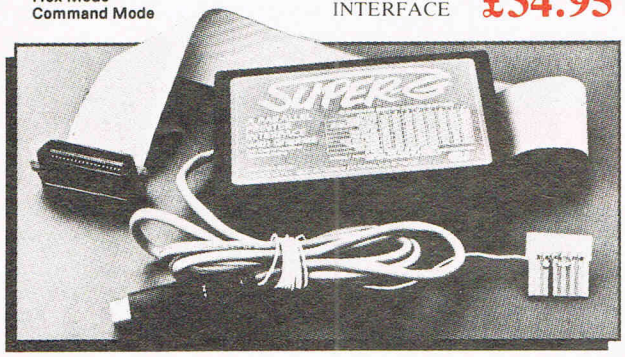

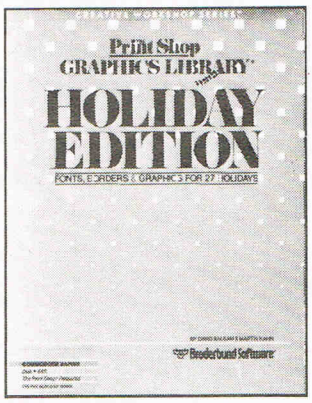

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CCI View

Dear Reader,

We have decided for the first time for five years that the price of CCI has to rise. The reason for the increase is simply the cost of paper which has risen by some 50% in the same period. Many other costs have also increased. The extra 10p, we believe, most readers will find acceptable considering the size and value we provide. We hope you agree.

One of the most amusing stories that has reached us recently was about the attempt by the retail chain Boots to stop the sale of the computer game Barbarian. The reason was not that it contained scenes where opponents heads are chopped off and bounce around the floor but, believe it or not, because the packaging featured the ample pin-up girl Marie Whittaker. A photo of her and a Mr Universe equivalent were on CCI's cover last month and that cover aroused some controversy too.

Boots refused to stock the computer game and Palace Software had to produce a toned down package. The funny part of the story is that Boots staff managed to mix up the two different versions and the "banned" Barbarian got sold anyway. The resulting publicity will certainly do no harm to sales of the game.

Our cover came in for criticism as "sexist". We take that word to mean biased toward or against one sex. Yet on our cover there was both a man and a woman — roughly of the same physical type. So sexist it was not. Is there to be a condemnation of using people or even animals or inanimate objects to illustrate magazine covers? One feminine complainant of the name of Tiffany told us she objected because the girl was "abnormal" The man? Oh he was "normal". Apparently she knows many male computer users with 56 inch chests!

The prices of the Amiga, even the 500, at least for the foreseeable future will ensure a bigger and somewhat older gamesplaying audience. Is that group, say late teens and twenties, likely to be shocked or corrupted by the photo of a girl in a bikini? Should computer magazines covers be confined to juvenile cartoons or illustrations of hardware — was the case when we took over CCI?

The stupidity of Boots and parrotted, unthought-out ideas like "sexist" are one of the symptoms of the double standards that exist throughout society. You can show a man but not a woman. See a bikini on a beach but not a computer magazine cover. Rent a vicious, violent video from your corner grocery store but a computer game is banned not for its violence but for its package.

The hypocritical attitudes that create these standards are both repressive and stupid. Computer users are just young or old people. They are influenced by and enjoy or dislike things no more than or different from anyone else. For some their computers are the major factor in their lives. For most,computing is just one aspect of many — which must be assumed to include a reasonable interest in men or women.

Censorship in any form is a difficult and dangerous affair. Who shall decide what you may see or play? And what are the standards and who decides them? Should you decide what you want or should it be some Big Brother — or Sister — who is probably, if you will excuse the pun, too big for his — or her — Boots?

A real event — not a non-event like Miss Whittaker's size of body — was the Commodore Show. A member of ICPUG told us that the User Group has been going now for more than ten years. A lot of Commodore water has flowed under London Bridge in that time — the PET, VIC20, C64, SX64, Plus/4, C16, the PC, and now the Amiga 500. Our special Amiga section this month coincides with the launch of the 500. As our Show report says, the Commodore world is entering a new era which will be dominated by its 16 bit machine.

In this issue, Jeff Minter in his usual contentious style takes to task our last month's review of the 500. Jeff's familiar Llamasoft stand was not unfortunately at the Show. Everyone at the Show must have been aware of the surge of enthusiasm for the Amiga 500 both from the public and the industry. It may have changed Jeff's mind about the Atari 16 Bit machine — the 500's main competitor

It is unwise to take only the UK viewpoint. The UK is just a small part of the world computer market and virtually everywhere, especially in Germany, the largest market outside the US, the Amiga is far and away the bigger seller. In Scandinavia for example the Amiga outsells the Atari by 10 to 1. The UK is a unique market and we must be careful not to let this special picture deceive us. The Sinclair Spectrum sold more machines in Britain than the C64 but worldwide the only global brand is Commodore.

This magazine regards its audience as more than only UK based and it will be interesting on an international scale to see which 16 bit machine dominates the market by the end of next year.

By the way, Barbarian is already available for the Amiga 500 — but ironically it does not come from Palace Software. It comes from a company called Psygnosis and is a totally different game. It has got a dinosaur not Maria Whittaker on the box. Maybe Boots will try to ban it as "Dinosaurist". They will probably, true to form, mix it up with the other Barbarian and sell both. And we'll bet that at least one of the Barbarians will get to number one by this time next month!

Your sincerely,

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Telephone 01-278 0333
Editorial ext: 274
Advertising ext: 280/266
Subscriptions ext: 274
Published by Croftward Limited
Finsbury Business Centre
40 Bowling Green Lane
Lonon EC1R 0NE
Distributed by: Comag, Tavistock Road, West Drayton, Middx UB7 7QE
Printed by Chase Printers Group
Typesetting: Carlton Barclay

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Ninja Hamster CRL's Karate Hero

CRL say that their Ninja Hamster promises to be very different from all previous karate games. Ninja Hamster, their hero, returns home from foreign conquests. He finds his village in the evil grip of his arch-enemies Sinister Rat and The Lizard of Death — to name just two his adversaries. Then, "in some of the finest martial arts sequences ever seen on a home computer," Ninja Hamster launches his quest to rid his village of evil, in a frenzy of flying fists, gnashing teeth and kicking feet. This black-belted rodent has, they claim, to be seen to be believed. (Is this the sort of game to be played with a mouse?)

Citizen - a Class of its own?

Citizen Europe is givng UK schools a free limited edition of an easy-to-use "Getting Started" manual. The 16 page guide has been specially produced for use in schools with Citizen's entry level computer printer, the Citizen 120D, which costs £229 (plus VAT) including interface. In addition, Citizen has produced a classroom utilities software disk, primed with a variety of standard classroom worksheets, which accompanies the manual.

More than 50% of county councils, district councils and educational establishments now use the Citizen 120D as their standard computer printer.

Robin Marriott, Manager of Citizen's European marketing, makes the point: "The education market is very important to Citizen, not only commercially but socially as well. We recognise that there are an awful lot of schools with little experience of computer technology and the easy to read "Getting Started" manual and utilities disk has been produced specifically to help teachers and children make the most of all the features of the 120D."

In addition, the teachers' utilities disk will produce standard work sheets, word-search, mathematical tables and print out lined or dotted paper.

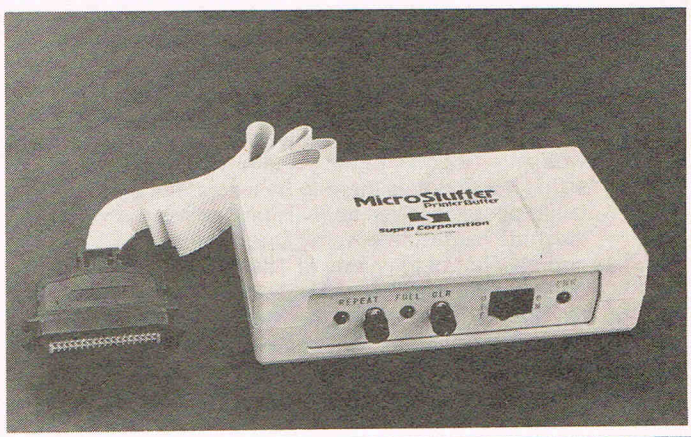
New Printer Buffer

Frontier Software has announced the release of the 'MicroStuffer' printer buffer for Centronics printers.

Manufactured by Supra Corporation of the USA, the 'MicroStuffer' operates in much the same way as a normal printer buffer except that it is a separate hardware device which does not take valuable memory from the host computer. The 'MicroStuffer' will operate with any computer already attached to a Centronics printer. The 'MicroStuffer' is simply connected between the computer and printer and thereafter automatically buffers any data sent to the printer, freeing up the computer for other work.

The 'MicroStuffer' includes a self test which checks its internal 64K of RAM when it is switched on and a Repeat button which allows the contents of the buffer to be printed more than once — ideal for mail shots.

'MicroStuffer' costs £49.95 inc VAT. Contact Frontier Software on (0423) 67140.



New Online Home Shopping

Comp-U-Card the UK home shopping service, is announcing a new, online facility for members who own home computers or Prestel sets. From 1 May, subscribers can be able to dial-up the Compu-U-Store OnLine service at local call telephone rates throughout the UK.

The service, available through the public switched telephone network, is part of a £1 million investment in new computing and communication facilities. As a further incentive, new members are being offered a 3 month free trial.

The OnLine service has two separate presentation methods to suit different user requirements. For those with services such as Prestel, Micronet etc the system provides a viewdata format (a paging system in colour, using hash as a command terminator). Alternatively, for home computer users preferring to use the scrolling capability of their equipment, an ASCII service (a monochrome scrolling system using return as the command terminator) is provided.

John Slater, general manager of Comp-U-Card United Kingdom, says: "This additional service now offers our membership even faster more direct access to our database of over 20,000 top name products, all guaranteed to be of lowest available prices. A feature of the Comp-U-Store OnLine service is the ability of the member to browse through our database at any time to suit his or her convenience. Purchase instructions can be input with payment confirmed immediately by credit card. A subscriber in John-O-Groats can use the new system as economically as someone in our home town of Windsor".

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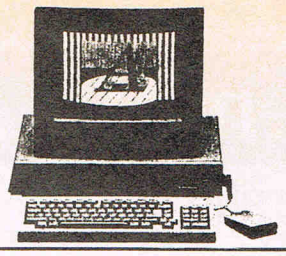

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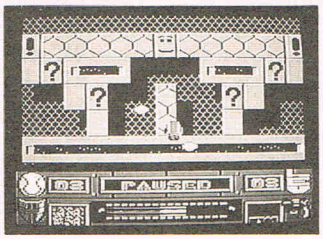
Gremlin on the Re-bound

Bbbbounder is bback! The tennis ball that doesn't play tennis is returning to the games scene — not to brandish a racquet but to star in his very own sequel.

Imaging a 3D world of colourful hexagonal slabs, collapsible floors, high speed bouncing and superb sound punctuated with impenetrable walls, mystery bonuses and super-intelligent waves of aliens who hunt in fleets.

Bounder, as you'll remember from the first program to feature him, is a highly intelligent tennis ball. With your help he must hurtle through 18 levels of enemy infested scrolling platforms in an attempt to reach the Master Alien. Many obstacles have to be overcome along the way — fleet aliens of ever increasing intelligence must be shot



and war must be waged on the sentinel who waits at the end of each level. Bounder's pressure must be monitored as if it is ignored, it will cause him to deflate. On the other hand, re-pressurising Bounder too highly will result in a burst ball!

Self-protection comes in the form of designer armour plating and this along with the all important fire power can be swapped or bought at specialist shops, dotted throughout the course of the game.

Simply continuing to exist in the face of all this danger is an uphill task. In Re-Bounder there are energy orbs, smart bombs, flashing bricks, vicious aliens and doubtful surfaces. Nothing is what it seems but every question mark must be explored and every alien fought to the death.

Gremlin tells us Re-Bounder will be as fiendishly addictive as its predecessor. Bbbbbrilliant, we bbbbelieve!

N.n.nineteen "19" N.n.nineteen

"19" — the No. 1 hit for Paul Hardcastle is to be used as a theme for Cascade's new computer game.

The game is to break new ground in that it follows closely the theme of a successful record' and secondly, the game will combine two games into one.

The player takes the role of the 19 year old draftee — he is given the choice "Will you fight the war or the draft?" If you decide to fight the war the game will proceed with an arcade type action game, if you decide to fight the draft the game will change into a text/graphic adventure with you joining the Peace Corps and campaigning against the war. However, if you make a mistake the game automatically switches to you being drafted immediately to Vietnam. The final sequence will not only provide a 'high score' table but a summary of performance.

The graphics throughout are very detailed and the soundtrack of the game is by Roy Hubbard and includes a coded version of the single.

Once again Cascade has shown it is not frightened of slightly controversial issues in order to produce originality. They have also managed they tell us to achieve an action adventure game which does not glorify conflict. If the excitement of ACE and the uniqueness of Sky Runner appealed to you then "19" will be a winner.

GAC's Double Gold

GAC has launched a new label to complement the Gold Medallion label, under which the best GAC's adventures are released.

Double Gold will feature TWO Gold Medallion adventures for the price of one. Double Gold adventures are expected to sell at £7.95. The first releases are due soon.

'Watch Out' — It's a new RPS Promotion

Never miss that important appointment again with the new RPS designer wrist watch — stylish Swiss-made quartz watch — available to purchasers of RPS High Focus disks.

Customers purchasing ten boxes of High Focus 3½in, 5¼in or 8in diskettes will receive either a ladies or gentlemen's watch — available in grey or white — free of charge. The watch — the latest design for the fashion conscious — is also water proof to three atmospheres.

In addition to the watch, customers are guaranteed a unique high quality, isotropic coated diskette.

Contact: RPS, High Street, Houghton Regis, Beds. LU5 5QL. Tel: 0582 867222.

The Tube — Quicksilva's first major release of the year

The latest — and they say most exciting — game from Argus is 'The Tube'. Due to be released on the Commodore 64, priced at £8.95 on cassette, and £12.95 on CBM disk.

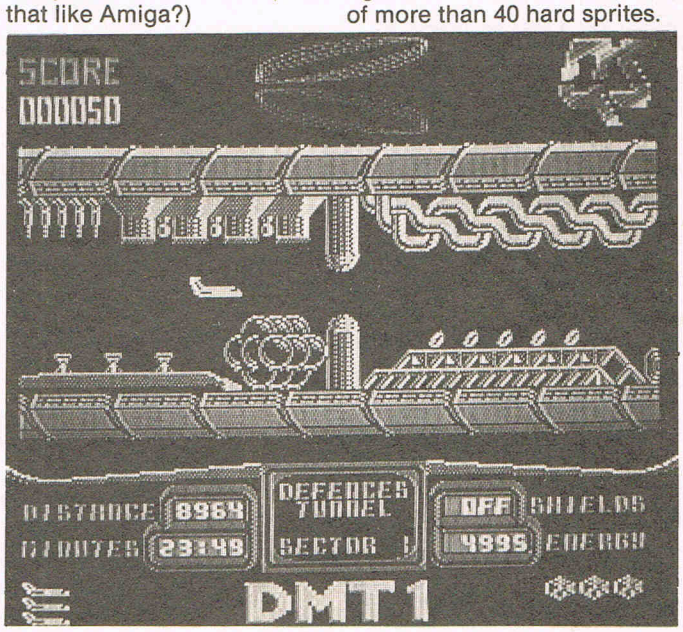
Programmed by Cannon Designs, based in Scotland, this game has many new features which have been incorporated in an innovative way — both the Commodore version is said to have pushed the hardware to its limits — 'The Tube' is almost the ultimate in machine capability. 'It is' they say sure to 'knock everyone's socks off!'. (Isn't that like Amiga?)

The music for all versions was written by David Whittaker who received wide acclaim for his work on Glider Rider. All versions have a catchy main tune, as well as around 15 separate sound effects.

Features

A control panel remains on the screen at all times, giving such information as the Time, the Distance, the Energy, and how many Shields you have.

The Commodore version has had the top and bottom borders removed — and there are some fascinating graphics in their place — fascinating because of the way they move. You will see two 'flattened circles', when the game is running, they move in and out of themselves constantly, the result is mesmerising! Even the "QS" symbol in the top right hand corner is made up of more than 40 hard sprites.



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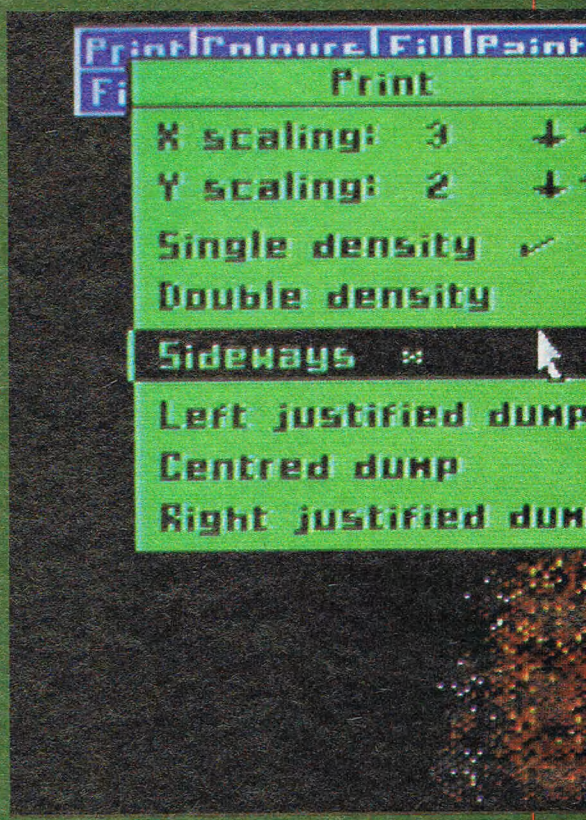
THE ADVANCED

Ian Waugh drawing lessons from an upgraded graphics package from Rainbird



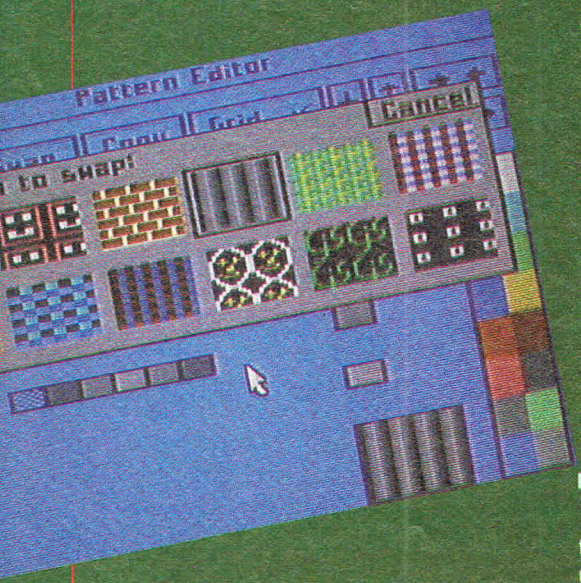
Another art program you cry! No, it's another two because the Advance OCP (Oxford Computer Publishing) Art Studio package also contains the standard Art Studio disc plus instructions. The Art Studio was released last year. It was pretty good but not quite mega. The AAS has bigger and better features — and more of them. We'll concentrate on the AAS because that's really what you'll be forking out your money for.

You can use it with a joystick, a mouse, a Koalapad or from the keyboard. If your joystick has a hair trigger the first thing you'll do is slow down the speed (Misc on the Menu line) — a nice option.

The top three lines of the screen hold the menu choices which are activited by moving an arrow onto them and 'clicking' or pressing the fire button on the joystick. This activates a series of pull down menus — very state-of-the-art. If you use this system for any length of time it'll make you lazy — there's just no other way.

Upon booting the disk the program gives you a page number, a line number and a word number and asks you to enter that word from the manual (thumb nose at priates who haven't a photocopier) but the routine becomes a bit of a nuisance after a while especialy as you don't need the manual after a first read through.

Let's work our way through the menu options. First is Print and this gave me my first problem — well, my only problem actually. I could easily produce a screen dump from the Art Studio but not from the Advanced Art Studio. I use an Epson printer and one of those awfully clever interface things which make the computer think it is connectedto an MPS801. Actually, it wasn't so clever because it didn't work but I suspect this is the fault of the interface and not the program. After several tries and re-bootings — and word searching through the manual I did what all good reviewers do — I gave up. I missed out on 48 sizes of screen dump so I will try again — or look for another interface. The AAS has a resolution of 160 x 200 pixels and the X and Y co-ordinates are shown in the top right of the menu bar. This helps enormously when trying to align corners and edges although a grid would have been a nice addition, too.



Onto colours. The screen is divided into cells each one containing 4 x 8 pixels and each cell can contain four different colours.

Ink and Paper colours are selected from the Colour menu and you can set up two lists which determine how the colours behave. The Exclusion list, as its name suggest, excludes colours from operations. For example, if blue was on the exclusion list, drawing with a brush containing red, green and blue would result in only the red and green colours appearing. Yes, you can draw with a multi-colour brush.

The Priority list gives one colour a priority over another and can be used to draw a foreground figure then fill in a background later — without going over the edges. The Colour menu can be called from most of the other menus, too, for convenience.

There are three kinds of fill — solid, pattern and wash — and you can edit the patterns. The Pattern Editor is very comprehensive. You can flip, copy, swap and scroll patterns and you can save and load them to disc or cassette.

Paint is wher you plaster your colours on the screen. You have a choice of 16 pens, 8 spray guns and 12 brushes and you can edit the patterns, too, of course.

The Text menu lets you add text to the screen. You can select bold or italic text, alter the spacing between characters and orientate the text left to right, right to left, downwards or upwards. You also alter their size with X and Y scaling options.

OCP ART STUDIO

You can define your own fonts, of course — you've come to expect nothing less with this package — and the Font Editor is as comprehensive as the Pattern Editor. A Copy ROM function copies the 64's character set into the Editor for editing. It's a breeze to use.

File handling is comprehensive — are you starting to get the picture? You can load, save, rename and delete files and you can clean up (validate), clear and format the disc. Selection is with the joystick and you just point to the file you want to access then select the option. You can reset the drive and alter the device number, too.

The file handling system catalogues the drive and shows the files that are associated with the operation it has been called from, eg patterns, fonts, pictures, etc. Although the files form the standard Art Studio are different, the AAS will load them, too. You can also merge one picture by loading it on top of the one in memory and here the priorty lists are used to resolve conflicts.

Windows are an important part of any drawing program and the Window menu lets you define a window, select the whole screen as a window or use last one defined. Having done that you can clear it, re-scale it to any size, flip it, rotate and cut and paste it. A multiple function lets you make multiple copies of a window easily.

You can save windows too, and the disk contains a collection of rather super windows which turns out to be a build-it-yourself castle kit, complete with moat. I had lots of fun with this!

The Magnify menu is essential for any detailed work, in fat this is where all the hard work is usually done. You can select x2, x4 and x8 magnification and superimpose a grid on the screen. Once in magnify mode you can select the other degrees of magnification and scroll around the screen. Pixels can be cleared, plotted (set to a specify colour) or cycled where they are given one of the four colours currently allocated to their cell one at a time.

The Shapes menu pulls down points, lines, continuous lines, rectangles, triangles, circles and rays. All fairly straightforward and easy to use.

The final menu is Miscellaneous which brings together options to view the whole screen, clear it, change one colour to another, alter mouse speed, save program setup information such as scaling factors, colours, Priority and Exclusions lists, etc. the program will automatically load these the next time you boot it.

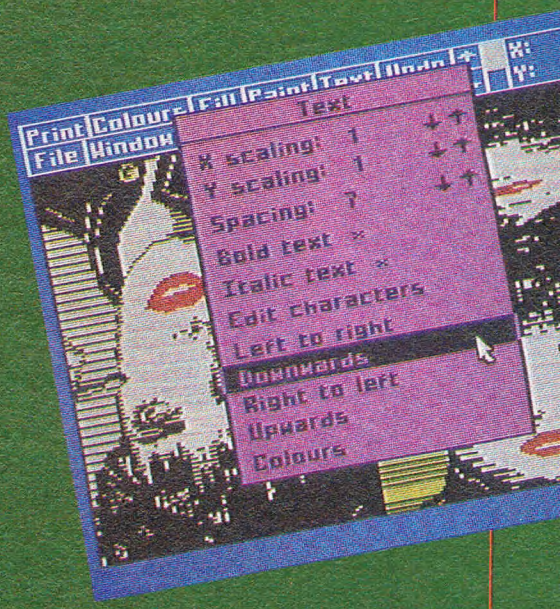
In case you don't have an MPS801 printer — or an interface that works - you can run a printer driver routine which, again, the progam will load automatically when booted. The disk also contains a BASIC program which lets you load and display a series of pictures.

Most options have an Undo function which should be compulsory in all drawing programs. How many times I've spoilt a drawing with a leaky fill I don't know. Not with AAS, though.

The manual is excellent with screen shots of all the menus. The standard Art Studio manual is excellent, too, and includes a 'worked example' which probably wasn't necessary but it's fun to work through this short of thing anyway. The disk includes a brilliant picture of a baboon which must have kept the artist in the pixel editor for ages.

That's the trouble with art programs — you need some artistic talent to start with and although none I've seen — so far — give you that, the Advanced Art Studio does let you make the most of what you have. If you don't buy the Art Studio then buy this, it's one of the best. At £24.95 it's a lot cheaper than art lessons, too.

Rainbird Software, First Floor, 64-76 New Oxford St, London WC1.



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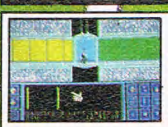

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Mega-help by Martech?

Martech are in the final stages of developing Mega-Apocalypse, a game they claim will be the 'shoot 'em up' of the year — but they have hit a major problem.

The game is so fast, furious and addictive that it has literally 'blown the mind' of its poor, unfortunate programmer, Simon Nicol, who has been working on the game since finishing Crazy Comets in 1985.

The game, initially for the Commodore only, is a one or two player, incredibly fast blast 'em up, zap 'em down and shoot everything out of sight and it incorporates several features never been seen (or heard) on a Commodore 64/28.

The graphics are being designed by Bob Stevenson whose graphics for The Pawn were highly acclaimed and Rob Hubbard has promised his most outstanding sound track and sound effects to date.

It's all too much for Simon, who said: 'Aarargghagh — its too mega!' and then collapsed.

Martech therefore, urgently need highly skilled shoot 'em up playtesters to help push the game to its limits. If you would like to help and be invited to a secret location (along with various well-known shoot 'em up freaks) and risk permanent brain damage, send a letter to the following address:

Mega-Apocalypse, Martech, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE, marking your envelope with CCI — State within the letter your genuine hi-score for at least three of these classic shoot 'em up hits of the past:

1. Crazy Comets (Martech)
2. Uridium (Hewson)
3. Delta (Thalamus)
4. Dropzone (US Gold)

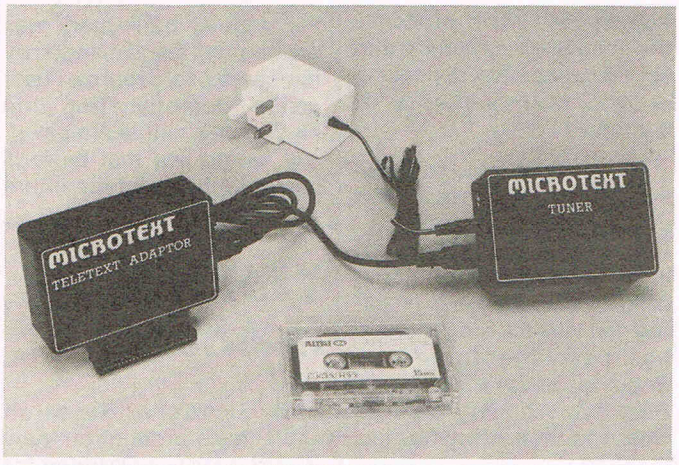
All those invited will have their numbers immortalised forever in the 'Galactic Hall of Fame.'

Teletext on the 64

A Video recorder is no longer required to receive Teletext such as Ceefax or Oracle on the Commodore 64/128. The Microtext Tuner is now available for use in the UK. Designed specially for use with the Microtext Teletext Adaptor, it uses an advanced tuning system, and it tunes itself in. The system allows Teletext pages to be saved to disk/cassette or printed out and advanced users can access Teletext from their own programs. The Teletext services provide hundreds of pages of up to the minute information free.

Existing Microtext users can purchase the Tuner as an add-on — Price £48.85. The complete system consists of a Teletext Adaptor, Tuner, Power supply, software on cassette (easily transferred to disk), connecting lead and a manual and costs £114.80 inc p/p (Plus £8.50 for 128D version).

Contact: Microtext, 7 Birdlip Close, Horndean, Hampshire. Tel: 0705-595694.



Can VDU's Damage Your Health?

An enormous amount of applied research has and still is being done throughout the world on possible health risks arising from the use of VDUs. One known fact is that VDUs give off low level radiation in various forms and this can manifest itself in operator eye strain, blurred vision, headaches, heightened sensitivity to stress, general fatigue and loss of concentration.

Awareness of potential health hazards is steadily growing amongst employers and workers alike, as well as those using VDUs at home for business or enjoyment (especially in the case of computer games).

VDUs can be screened against potentially harmful emissions and one such new product recently introduced from France is the Screenshield from Kareware.

Screenshield is portable and can be installed in seconds. In appearance it resembles a high-tech roller blind which is discreetly attached to the VDU casing above the screen. Screeshield has a specially designed diagonal filter system to effectively combat glare and screen reflection whilst maintaining maximum visibility.

Screenshield's metallised surface is earthed to drain away electrostatic charges which are believed to cause increased sensitivity to stress through the disturbance of the natural ion balance in the atmosphere. This facility also protects microchip equipment which can be enjoyed by the build up of static in a computer environment.

Screenshield is available in a range of standard sizes compatible with almost all micro computers or VDU units and prices range from £55 (exc VAT) to £74.50 (exc VAT) depending on model. Contact Kareware (KAI Ltd), Unit 1, 7 Cubitt Street, London WC1. Tel: 01-608 0082.

Armageddon is Coming!

Don't be too scared, it's not entirely the end of the world — yet! The Armageddon Man from Martech is a new game announced for a 64 release in August. The Armageddon program is no simple shoot 'em up, Martech tells us, but combines the entertainment of computer action with tactics and mental energies, more in keeping with a game of chess. The Armageddon Man will cost £12.95 on cassette, £14.95 for disk.

The year is 2032 AD. The world's nuclear arsenal has greatly expanded over the last thirty years. There are now 16 nuclear superpower nations, each with the capacity to trigger the final destruction of mankind. Armageddon.

As The Armageddon Man you must reduce the chances of war between enemy countries by maintaining an equal balance of power and resources. If the unthinkable does ever happen, you will have to deploy laser defence satellites to reduce civilian casualties to a minimum. Your relationship with the leader of each of the 16 superpowers is also of crucial importance.

The Armageddon Man features icon-control, with all activity governed by the selection of the five main icons. The package also comes complete with a colour vinyl map of the world (2032 AD edition) and vinyl re-usable flags of each nation to assist you in your vital task of monitoring any changes in the alliances between the superpowers.

Frankenstein

CRL's follow-up to Dracula, Frankenstein has been awarded a 15 Certificate by The British Board of Film Classification.

The decision was based on the combination of horrific and atmospheric text and gruesome, digitised graphics. It was felt that children under 15 may find it disturbing.

CRL say they found it impossible to capture the true essence of the original Mary Shelley novel without the inclusion of these elements.

..news...news ...news...news

B-24 Combat Simulator

U.S. Gold will be bringing out a flight/combat simulator entitled B-24 for the Commodore 64/128.

You command the lead B-24 Liberator, which will determine the course of action for an entire formation of 40 B-24's. There are single mission and 19 mission scenarios with rules covering the flying of the aircraft, mechanical/engineer failures, bombing accuracy, flak, enemy fighters, fuel usage, bailing out and falling out of formation.

One sobering fact U.S. Gold tells us is that the 60 aircraft that the 460th Bomb Group historically started with, only 4 survived after the first fifty missions.

Coming Soon From S.S.I.

U.S. Gold will be shortly releasing several new S.S.I. titles including their first conversion to the Amiga.

War Game Construction Set is due to be released for the Commodore 64/128.

Kampfgruppe which has done well on the Commodore 64, will soon be availale for the Commodore Amiga, following later will be Amiga versions of Roadwar 2000, Phantasie and the new fantasy role-playing adventure Phantasie III — The Wrath of Nikademus, as well as the Amiga version, Phantasie III will also be available for the Commodore 64/128.

The sequel to the U.S. Civil War simulation Gettysburg, Rebel Charge at Chickamauga will be simultaneously released on the 64/128.

War in the South Pacific, as the titles suggest, simulates 3 historic scenarios from World War II (1942-43) and will be available for the Commodore 64/128.

64 Defender

When CCI broke the news about Defender of the Crown on the Amiga, the reaction for many was envy of disgust — that it was only for the privileged Amiga owners. Now Mirrorsoft have taken pity on the 64 world and released a Defender of the Crown just for Commodore's worldwide 7 year old leader.

The creators of Cinemaware, have achieved what some said was the impossible and produced a version for the humble 64 which stretches the machine's graphics and sound capabilities to the limit — and there's plenty of gameplay too!

If, however, you've been living in a cave, here's an idea of what you can expect:
Defender of the Crown is set in the age of chivalry — a time of lusty wenches and black-hearted villains. King Richard has been murdered and England thrown into civil war. Amidst the ringing clash of steel and thundering hooves, the Saxon knights have chosen you to lead their battle against the hated Normans. To restore Merrie England to its former glory, your skills both as a swordsman and as a military leader will be severely tested — but if you succeed, you'll win the crown of England and the love of many a beautiful damsel.

Defender's features include: Heart-stopping action as you rescue your fair lady from a foul Norman dungeon Majestic tournaments where you must joust for fame, fortune, and land Heroic battles led by your castle-shattering giant catapult. It's more like being in a movie than playing a computer game — except that you have to buy your own popcorn!

£14.95 on disk only for Commodore 64/128.

Contact: Mirrorsoft, 01-377 4837.

Downunder Report

Though there is a campaign to sell the Commodore PC5 at A$1495.00 and its bigger brothers, the PC10 and PC20, there was no company representation at the PC Show! Last yer, Commodore set up a huge display featuring the sound and graphics of the Amiga. The imposing stand was supported by a separate display arranged by a local Commodore dealer. However, this year the only mention of the popular trade mark was on the small stand manned by members of a suburban user group demonstrating the charms of a single Amiga.

It would see that there is some doubt about the future of the Commodore 64 and the 128. They are still readily available in stores, but there is very little promotion these days. The Vic 20 is long gone and the Plus/4 has been cleared out at A$99.00. Though the C64 Family Pack is commonly marked at A$399.00 it has been seen at clearance sales priced at A$199.00, and hundreds were sold very quickly at that price.

With no Commodore representation amongst 200 stands at the annual Personal Computer Show. All existing machines being offered at reduced prices. No phsyical sign of Amiga 500 and 2000. Supporters of the most popular trade mark must be forgiven for showing concern for the future of Commodore in Australia.

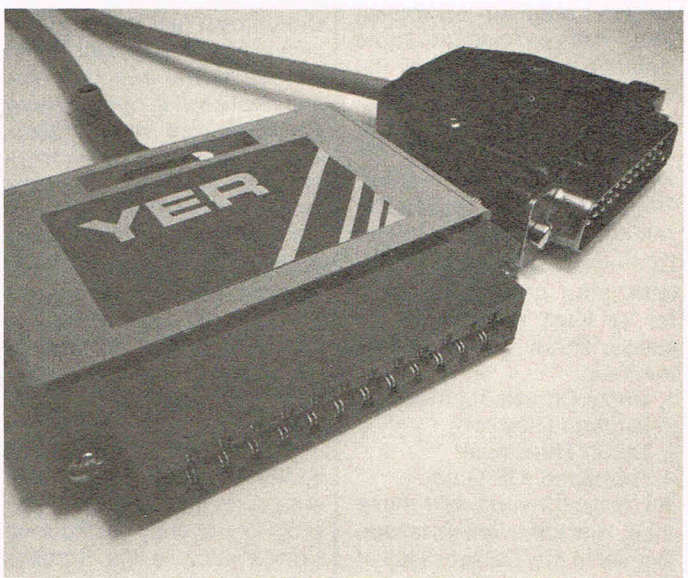
YER New Interface

York Electronic Research (YER) have brought out new RS232 interface cartridge for the C64. It is supplied with a cable, 4000 word manual and a disk or tape of utility software including a terminal emulator. Price £29.99 inclusive VAT.

New 64 Assembler

YER is also offering a new editor/assembler which eliminates the usual frustrations of the edit — assemble — test cycle. It is available on tape or disk at £12.99 and supports both tape and disk filing. In resident mode code may be repeatedly edited, assembled and executed without waiting for file accesses. This is a particular bonus for cassette users. Source files are word processor compatible and may be chained together enabling very large programs to be assembled — up to 38k in one go.

Contact: York Electronic Research, The Fishergate Centre, York. Tel: (0904) 610722.



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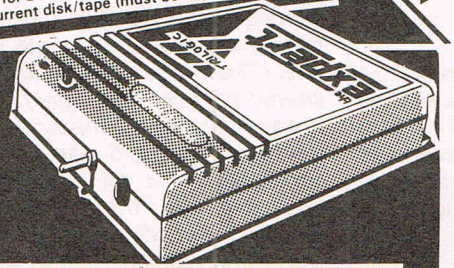

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Dear Rae...

This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET/CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

MINI-SHEET. A DEBUGGING EXERCISE

Dear Rae,

'Like Mr Perkin (May CCI) I have spent many hours trying to unravel "Minisheet" (Sept. '86 CCI). Presumably I have made a mistake somewhere. I am sending a tape and a copy of the listing I followed.' Please "sort me out!"

M.J. Lacey, Bromsgrove

Thanks for the tape. As you surmise, there are mistakes in your tape version. Let me explain my findings in the sequence I found them — the method should be interesting to many readers as an entirely typical debugging session, so I'm answering at some length.

1. First, try to run the program. In this case, you'll find that not much happens unless you press C (to clear the spreadsheet), then Y (in response to the program — to confirm you're sure you want to clear everything). Now the empty spreadsheet is drawn on the screen, and we're in business, ready to try keys to see what happens.

2. We look for simple typing errors. Usually these will show up with a Syntax Error or similar message. In your case, line 350 had a) in place of a >; line 450 had W4 instead of W$ (you missed the shift key); and line 1650 had VAL$ in place of V$. All these caused Syntax Errors and were quite easy to find. More tricky was SYS 6552 in place of SYS 65520 in line 1430; the program crashed out of BASIC, which is a sign of machine-language activity, and by Stopping the program just before the relevant point I found this error.

Obviously, other readers typing this, or any other, programs in, will make different mistakes, but the trial-and-error process of correcting them is similar.

3. An important error — not the fault of any reader! — is caused by the listing itself: the printer has been set to output pound symbols (£) rather than hash symbols (#). This doesn't matter too much with, say, the page turning feature, where £ or # can just as easily be used to move through the spreadsheets, preventing the spreadsheets loading, saving, and printing out! So each of these £s MUST be replaced by #.

A similar problem often happens with graphics characters; see below.

4. At this stage we can test the program itself for bugs. I soon found that the F2 command — which computes values — and which I thought had a bug, in fact worked as the author intended. It evaluatest the entire spreadsheet, from A1 through P4, by imitating direct mode commands, by printing lines on the screen and poking return characters into the keybord buffer. (Because of this use of BASIC, you'll get results like 1E-3 for .001, and so on).

This is a relatively slow process, and explains why, whena formula is entered, the screen simply shows a ?. It simply would take too long to recalculate on each new entry. Given the limitations of the method the programmer has used this is reasonable, but is unusual compared to most spreadsheets, and looks strange at first.

Minisheet does however has a genuine bug in its listing; a semicolon has crept onto the end of line 750, and this should be removed to tidy up the screen appearance.

In a non-commercial program, a certain amount of toleration is likely to be necessary in small ways.

*Here, the input is not error-trapped, allowing you to cursor up and down out of the proper position, something which should be prevented. And the option allowing a figure to be borrowed from a different 'page' of the spreadsheet (eg A1#4 takes element A1 from page 4) has limitations — the scanning system doesn't things like A1#4*A2#4. But this sort of thing isn't too serious, provided you're aware of it.*

5. If you've followed me so far, your program should be working. We could consider minor improvents to the program, something feasible in BASIC though much harder in machine language.

For example, try modifying lines 1080 and 1090 so that (say) + and – keys allow stepping backwards too, not just forward.

PRINTER ENHANCER

Dear Rae,

'I need help with this program from Nov. '86 CCI. (1) Do I need to enter the wordprocessor program and then feed the Printer Enhancer? (2) I would like instructions for entering the print commands I've marked on the listing.

Khem Dokarry, Ashford, Kent

(1) I don't think you've quite understood how the program works. When you run it, it asks for the name of a file of text, which it then reads through and prints out in an attractive typeface, albeit rather slowly. The file of text could simply be printed directly, using, for example, OPEN 1,1,1,"Name" to tape, then PRINT#1,"Text"; followed by PRINT#1: CLOSE 1. You don't really need a wordprocessor at all.

(2) The graphics were printed on a non-Commodore printer, which can't produce exact equivalent of the screen appearance. They are handwritten versions of reverse on and off, screen clear, and home commands.

TURBO 64. ANOTHER DEBUGGING EXERCISE

Dear Rae,

'Let me congrtulate you on an excellent magazine. Now, in October '86 you published a listing for "Turbo-64" in two parts — BASIC and monitor. I found the BASIC program simple enough to type in, and it cuts the loading time by about ⅔, but when it came to typing in the monitor I almost took up skydiving. Lines 1000-1160 give 'Syntax Error' whenever I hit return. What's wrong?'

Andy Melville, New Zealand

Nothing's wrong. You haven't grasped that the monitor listing is only an explanation of what the BASIC program does. The huge amount of DATA in BASIC is exactly equivalent to the machine-language listing. For example, the first two numbers, 169 and 11, are, in hexadecimal, A9 and 0B. These are interpreted as LDA#0B in machine language, and this is the start of the machine-language listing. You've wasted your time typing in the monitor listing as though it were BASIC.

C16/PLUS 4 DLOAD PROBLEM

Dear Rae,

'The manual states that "DLOAD can be used within a BASIC program to find and RUN another program on disk." I thought, wonderful! I can write a menu program to chain my programs on disk, but alas it doesn't work! The programs are a garbled mess . . .'

B.R. Martin, Eastbourne

That's right. This happens with most Commodore computers, because, simply, the computer thinks the new program is the same length as the old one. (The idea is to allow variables to be shared between programs). If the new program's longer, the end of it gets chopped off and the listing gets scrambled. For 64 users, my book 'Programming the Commodore 64 (Revised Edition)' explains why. (0403-710971 for details).

The simplest cure is to pad out your menu program with unused lines until it uses as many blocks on disk as the longest program; this isn't all that satisfactory, as the menu program take longer to load, and also it may cause some programs to run out of memory, but it's easy. Incidentally, the 128 doesn't have this problem; its variables are stored in a separate bank of 64K from BASIC.

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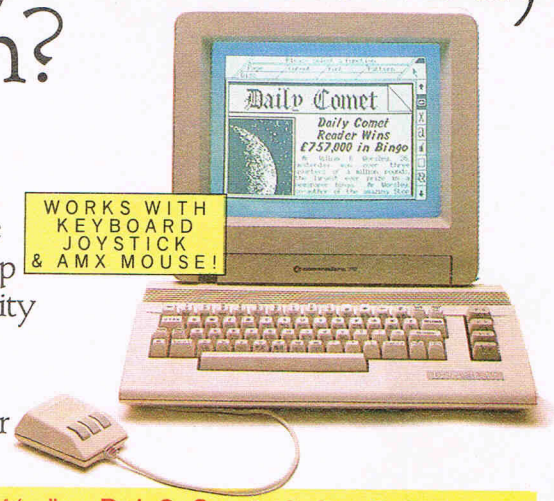

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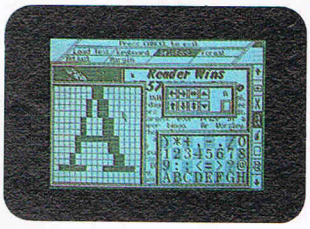

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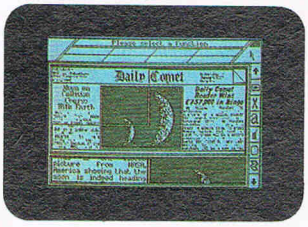

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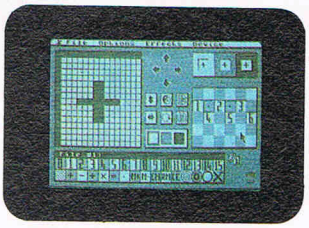

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ANITA SINCLAIR

Queening The Adventure World

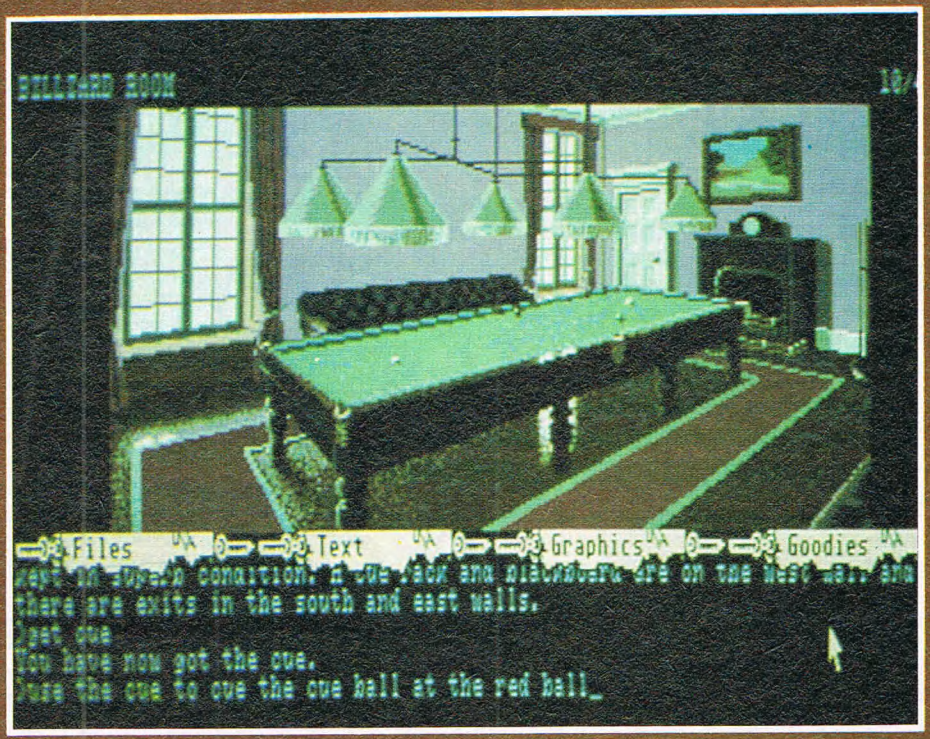
Magnetic Scrolls - Market Leader

It is sometimes claimed that 90% of computer games players are male. That is probably an understimate. It is possibly even more of an underestimate to say that of those who *write* computer games 99% are not female. Certainly, the computer world, especially the computer game field, is as masculinely-dominated as football or cricket. Yet in this apparently macho area, there is one woman who is now recognised as a strong international influence. Interestingly that recognition is founded on relatively little foundation. In fact on just two games, only one of which has had time to reach a wide audience. That one computer game, significantly perhaps, is based on chess, a game in which the most powerful figure is feminine — the Queen — an all powerful commanding figure. The game is called The Pawn and the woman is Anita Sinclair whose company, Magnetic Scrolls, created it.

The Pawn, like The Guild of Thieves, the second game released by Magnetic Scrolls, is not a muscle-flexing, power-dream boys' own shoot 'em up but an adventure game. The adventure game is no less challenging than kill the aliens joystick bashing but requires more the use of the intelligence than of the reflexes. Adventure gaming is puzzle-solving and with games like The Pawn and Guild of Thieves is very high level puzzle solving indeed. It is also a part of computer gamesplaying that is gathering popularity, possibly because as the 13 or 14 year olds who were caught up in the first home computer boom at the beginning of the 1980's reach their twenties they want computer entertainment of a more sophisticated kind than updated Pacman or Space Invaders. And they have the disposable income to spend on higher priced products . . .

Adventures are also a field that is reputed to attract a larger female audience than other forms of computer games. It presents the intriguing picture that out there in the prosperous quiet of Commodoreland, thousands of wives and mothers surreptitiously forsake the chores and sidle into the back bedroom where the 64 stands — awaiting the familiar fingers of husbands and sons. They switch on , dip into the complicated question and answer tortuosities of The Pawn, forgetting to put the dinner on . . .

But that is not how Anita Sinclair got started in the computer games business. It was in 1980, when she was 17, that she got her first computer. It was UK101. A what? "Well, it was before Sinclair hit the scene." She says. That Sinclair was, of course, the ineffable Sir Clive. As Super Felix would say, "No relation" but with


Files
Text
Graphics
Goodies
there are exits in the south and east walls.
>get cue
You have now got the cue.
>use the cue to cue the cue ball at the red ball_

Bank of Kerovnia

Sir David Muchmore

106 10 BOE

The adventure game is no less challenging than kill the aliens joystick bashing

whom his namesake Anita is reputed to have had a close relationship. It could have been he who recommended her to "Get a list of parts, a 6502 chip, a debugger and a "Ohio Super Board' and put together a computer."

She was at that time already off and running with a business career. She had become co-boss of a glass company in fashionable Hampstead, London. She and a friend imported glass from Europe and the U.S. and supplied "a clientele of night club owners". She had got involved because with a boring secretarial job on the floor above the glass company, she kept coming down and telling the owner how to run the business. She got put in charge of the administration.

She kept coming down and telling the owner how to run the business

She had left school two years before. She was clearly a strong-willed girl who at eleven ended up at a school in Normandy where she spent the next four years. She liked it.

"For two and a half days a week you could do whatever you wanted. Go karting, criminology, anything. I got a lot of maths and science out of it. It had been boys only. I was the second girl there."

At 15 she left and took a secretarial diploma, worked in a typing pool, tried to mend her typewriter "and got thrown out of the union."

". .like a nuclear collision"

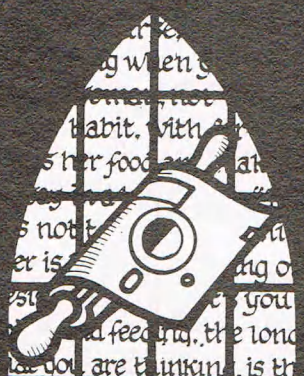
She went to a travel agency "I was terrifically shy . . . but I started to think my boss was doing things wrong . . I subtly told him." She grimaces ruefully. "Subtlety with me is like a nuclear collision!"

After 18 months in the glass business, her partner got cancer and was told to retire or die. They sold the business.

She got a Vic 20. "It had colour! You could do lovely things with it!" She started writing simple games. She sold six. She got involved in a computer shop in Edgware Road. "That's how I met most of the people who are important to Magnetic Scrolls . . . We illegally sold BBC's that had three feet! . . . We sold 20 BBC's a day, every fourth one with four feet! We also sold complete Apple systems . . . 2.5K . . . Two a day . . . People came from places like Denmark just to play for one hour on a computer!"

Her partner in the shop "went off to involve himself in lasers" and she started writing programs on commission. "The first program to put my name on the screen in machine code took three months but I never perceived it as difficult . . . I got dreadfully bored doing business programs . . . I had met Ken Garden and Hugh Steers . . . "They are now her trusted confederates in producing games like The Guild of Thieves." I knew I wanted to do something in computers that was big . . . I'd milked myself for everything I could get out of myself . . . I knew my limitations . . . of knowledge . . . I wanted to get back into graphics . . . games . . . being able to do everything was greatly appealing . . ."

which extends to the north and east.
Northeastward is an entrance to the ice tower. A snowman is here.
>say hello to the snowman



Magnetic Scrolls
Adventure Guide

"The Willy Affair"

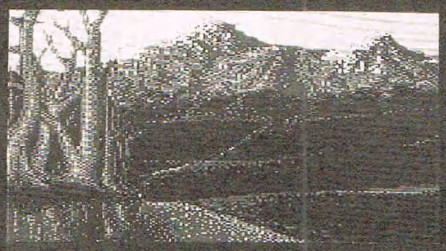
She had discovered she had a natural talent for chess. "By female standards I'm very good. I had something in mind like Deja Vu." She screws up her face contempuously. "What we would have done was boring . . ."

Garden and Steers were in the middle of their A level examinations. There is a confused and somewhat scandalous story, that Sinclair does not deny, that they sat up right through the night, before the two men were to sit the computer science exam, creating a computer game in which a limp and then subsequently erect "willy" played a large part. Apparently "The Willy Affair" interested and convinced Sinclair to create "the system".

Sinclair explains, "If we wrote a game, we'd need as much time to write another — perhaps thirty man years. By creating a system first, Guild of Thieves took only five man years. We've enhanced the system, too. We listened to people's comments."

Out of the system came the Parser that made The Pawn such a success worldwide. The Parser was sufficiently well designed to allow a wide range of questions to be asked and the computer to be able to understand and deal with them. This Parser has been even more greatly enhanced for "Guild of Thieves" which can mage 147 verbs yet it was written in 64K.

Sinclair realises that Magnetic Scrolls' games may not be to everyone's taste. "Most people's idea of creativity is not subtle. We allowed people to work out



the concept. Maybe it was too sophisticated for our market. A lot of parts in The Pawn no-one has got yet." she adds thoughtfully.

She believes that many adventure players will prefer "Guild of Thieves". Some have raved about it, she claims in a way they never raved about The Pawn. "The Pawn I could finish in an hour," she declares forcefully. "Guild is a lot bigger. It would take me 3½ hours . . . It has an extra 12K of code . . . You get a wonderful sense of reality . . ." She thinks the average player will take at least 10 days to finish it.

"The Pawn has seven different solutions"

When she speaks of them, she gives her games an oddly personal feeling, as if they had assumed for her the personalities of familiar beings, children perhaps. "The Pawn has seven different solutions" she comments with a kind of pride. "You are not important to The Pawn. You do not have a role. The game will go on without you. All I am is a pawn . . . and there is no queening move. It's not that sort of a game . . ."

But how did a game of such complexity — more likely to frighten the usual mass market oriented compute games company than enthuse it — ever get published?

It happened through Sinclair — Sir Clive. "I'd written some arcade games for the QL". And she started the game for that machine. She met Tony Rainbird, then a leading executive at B.T. "He's wonderfully astute." She says. "He encouraged and aided Magnetic Scrolls team to develop The Pawn. It was a case of publisher and programmer working together". She says. "He had faith in us.

That faith must have been a little shaken when he was about to leave for the first showing of The Pawn at the Consumer Electronics Show in the U.S. on the 6 O'clock plane and a 4 O'clock Sinclair and Co were still writing code . . .

The success of The Pawn is now approaching the legendary. Outside Infocom's adventures which Sinclair generously acknowledges as "the best", it probably sold more than any other of its kind. And not just in Britain. "We sell well all over. In Germany probably as many as in the U.K. She refutes very forcefully a recently publicised comment by a senior B.T. executive that there is no market in the U.K. for high quality, high priced software. "You *can* sell good quality! You need to attract the people! You need proper marketing! Most people who played The Pawn had not played another adventure. We sold 20,000 in the U.K., including the IBM version, 150,000 worldwide . . . We like the Amiga . . . The next generation is targeted at 512K but the 64 is still our main market . . ."

"By this time next year we'll have four games out . . . by the year after, seven"

She is not worried about piracy. "If people are seriously interested in playing games, they'll buy it. If the disk had been so write-protected. I don't think that we'd have sold that much more." She shrugs, "I tape all my records. I'm doing something illegal . . ."

Magnetic Scrolls has a projected game called "Upon Westminster Bridge" but Sinclair will not reveal details yet. "And we're looking at a follow-up of The Pawn. There were so many bits that the whole thing got too large. It would be really nice to do a follow-up that ties it all together. And there is a 32 bit idea that is a 'shot in the dark' . . . very innovative."

By this time next year we will have four games out . . . by the year after, seven."

She intends to release three or four a year. "If we tried to do more, the things we find nice about our games would not be there . . ."

She predicts that in the future a lot of new people will be playing. The games will not all be like The Pawn or Guild of Thieves. "We are working on totally new ways of doing things. The present format is totally geared up for today's machines. "Westminster," she says "will be almost like reading a book . . . The story line is a most fantastic plot' . . . We're working at games that appeal to the adult. That's why you're spending £24 on one of our games not £9 for a quill-written adventure.

"The kind of thing that sits me down at a computer and won't let me up again"

It can take you 150 hours . . . It has real gameplay . . . the kind of thing that sits me down at a computer and won't let me get up again!"

Magnetic Scrolls — though Tony Rainbird is no longer with the company that bears his name and still publishes Sinclair's adventure — has a contract with B.T. to provide six adventures over two years. But Magnetic Scrolls could go elsewhere with other games. Sinclair still has the creative staff who worked on The Pawn. It is a very unstructured organisation "People come at eleven in the morning. "She comments. "And work till eleven at night . . . You don't need many people to do good things. "She has around a dozen, not all of them housed in a workshop style establishment by the Thames not far from where stood Shakespeare's Globe Theatre. He would probably have appreciated the coded complexities of their adventures even if he would not have understood the powerful DEC Vax minicomputer to which a variety of other computers are connected to allow the "system" full rein.

Anita Sinclair is slim, sophisticated, articulate and attractive. She exudes nervous energy, crushing out cigarettes, gesturing excitedly and shaking the dark hair from her eyes. She says she would like to have children but admits to no present romantic association likely to bring them quickly. "I have two good friends — men — I can rely on . . . "She is also rumoured to have been close, at one time, to Chris Curry, the founder of Acorn Computers who manufacture BBC machines. "I love my books and music . . . piano. I like thrillers and beautiful books. Gabriel Garcia Marquez' 100 Years of Solitude . . . "She stares defiantly. "I do what I want when I want . . . A lot of women are insecure. I don't have that insecurity . . . " She leads a company that has set new standards of creativity in adventure games. It has given them a dimension that may more logically move toward the complex 16/32 bit machines than simple arcade games. It has possibly opened up a "mainstream" audience that might not otherwise have bought computer games. Can she continue to inspire Magnetic Scrolls talented team to leading edge innovation? Will their games become just too intellectually demanding for a mass market? Can the determined and forceful Anita Sinclair go on carving out a successful share in a tough male-dominated field? These are questions that not even the subtle parser of a Magnetic Scrolls adventure could answer yet.

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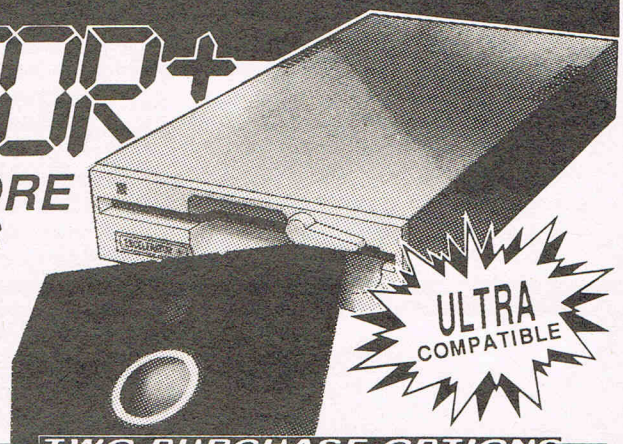

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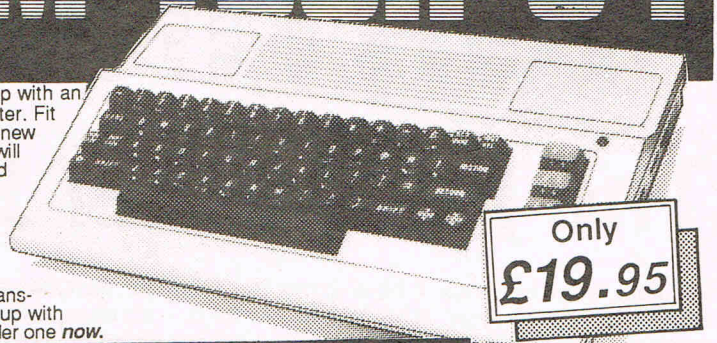

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FIGHTING WORDS

The Jeff Minter Page

Pin back your lug 'oles, I have some words to lay on you. The general consensus of opinion, certainly throughout CCI as far as I can see, is that now Commodore have done the decent thing and released the A500, so Atari are going to curl up and die and pose no more threat to Amiga at all.

Well, that very definitely Ain't So. If Amiga is going to make it big, even make it as well as the ST already has in this country, then there is mucho work to be done. You see, the positions of the ST and Amiga at the moment are analogus to the positions of the C64 and the Atari 800, way back in '82. if you'll cast your mind back you'll doubtless remember the scene. We had the Atari 800, arguably the best 8-bit micro ever put together, with graphics unequalled by anything else before or since (except perhaps the ill-fated Enterprise, which had a very similar dispay architecture). You have 128 colours and the most flexible screenhandling around; you could construct screens of numerous different resolutions, mix text and graphics modes, generate raster-interrupts incredibly easily compared to the Commodore method, and scroll whole lines, screens even, merely by altering two bytes in the Display List. (All this display virtuosity is hardly surprising when you consider the fact that the '800s graphics chip was designed by none other than Jay Miner — the guy who worked on Amiga's goodies). Add to this a reasonable Basic which allowed you to program these graphics with nary a Peek or Poke in sight, a decent four-channel sound generator and a good solid keyboard, and you have what should have been the definitive 8-bit micro. Unfortunately there was the question of the price — around £800 at the time of launch and well out of reach of most people. Just like our old friend the A1000. Everyone knew it was great; no-one could afford it.

Then, along comes Commodore, with Uncle Jack at the helm, and launches the C64. The C64 is in no way as powerful as the '800 — it has only 16 colours, an awful outdate Basic which gives you no access to the machine's hi-res graphics or sprites, an admittedly good sound chip, but again, no support for this from Basic. Not a bad system, but a ways behind the '800 from Atari.

However, the C64 has one thing going for it — it's cheap. So, before you know what's going on, UK software bods are getting beyond that awful BASIC, getting inside the machine, and starting to make it work. Before long there's a good software basic for the new machine, and a lot of users out there.

So, Atari look at the C64 and say 'But our machine is much better! If we reduce the price just a bit, surely people will pay just a little more for the extra facilities, and we'll blow Commodore to bits, no sweat'. So they drop the price on the '800, and what happens?

Well, the prospective buyer looks at the two machines, and sez to himself, 'Sure, the Atari is more powerful than that Commodore 64. I wonder if I ought to spend the extra, and buy one?' But then he goes and looks at the software available for the machine. But then he goes and looks at the software available for the machine. He looks in the Commodore section and sees a LOT of companies releasing a LOT of games, and they're about seven quid, maybe less. Then he goes to the Atari section, and looks at the game there. They're all American imports, and they all cost about £20!! At which point he gets out his wallet and ladles over the dosh for the C64.

Now, unless Commodore are careful, we're going to have the same sort of scene between the Atari ST and the new A500. Everyone accepts that the A500 is brilliant, technically quite a bit better than the ST. The difference is that the ST has alrady got a large following of good UK hackers, and lots of exciting things are happening with it. You can pick up stunning games for £10-£20; really useful utilities and nifty hardware add-ons. All available now, and fairly cheaply. Music, DTP, graphics, wordpro, CAD, spreadsheets, etc., etc. Now look at the typical Amiga list. With one or two exceptions, the software is all US-imported and very litte is under £30. I mean, Defender of the Crown is a great game, stunning visuals, but £40?? Deluxe Paint is perhaps the best paint pogram ever, but the price — over £100! When the machine only cost you £500 in the first place, these prices are very unrealistic . . . And look at hardware, too. You can get a good, reliable 20-meg hard drive for the St for £500. Amiga one will cost you nearly twice that. Why? And stuff like Genlock, which lets you merge TV video and computer graphics, and was touted as one of the Amiga's special talents at the launch, will cost you £450 for the Amiga. ST Genlock, now available despite the machine not having been designed for this in mind, is available for a touch under £300 — and by way of a bonus, the ST genlocker will also perform real-time frame grabbing — so you've got a powerful digitiser too.

So, you see, the ST is a people's machine, the Labour Party of the micro world, whereas the Amiga, despite being more powerful, is a lot less accessible, and will cost you a fair bit more to get into. If Amiga is truly to threaten ST, it needs cheap software that actually works; good distribution; and support from the users — which is where you come in. I think that the best thing Amiga has going for it is not the extra tech goodies, or anything like that — it's the loyalty of Commodore users, which is an amazing thing. Many of you won't have bought STs just because of one thing — it has 'ATARI' written on it rather than 'COMMODORE'. If Amiga succeeds in this country, it'll be due at least in part to all you C64 owners who've waited patiently for the Big 'A' to fall to a decent price level. Now, it's down to the likes of you to persuade software authors that there are enough of you out there to make it worthwhile supporting the machine. The ST is already well-supported by the likes of US Gold, with conversions appearing regularly — what you want is to see the magic word 'AMIGA' appearing on the availability lists along with C64, Amstrad, Spectrum and ST . . .

The point I'm trying to get across is that although I agree to a certain extent with last month's review of the A500, I don't necessarily agree with the closing paragraph, where the reviewer says he feels sorry for all those people who have already bought the Atari ST machines. Such a comment is far too audacious, given the circumstances.

No, my message to the new Amiga-followers is not to pity that large and enthusiastic band of people who own the ST and are making it perform ever-more amazing feats of programming. Do not pity the Atarians. Fear them.

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THE SHOW!

The Commodore Show

A new era has begun for the Commodore world and it started, for the U.K. at the 10th Commodore Show. The 64 — with close on 8 million the world's biggest selling computer, possibly never to be surpassed, still dominates the minds of most Commodore owners. But today's Commodore computer is the more powerful, the more exciting Amiga. And the crowds at the 10th Commodore Show witnessed this growing and unmistakable division of interest. It is not only the 512K Amiga 500 power that makes the difference but the simple fact that the 64, excellent machine that it has been, now no longer has the capability to provide what the sophisticated home micro user is beginning to believe is his or her natural due. It is like the propeller driven aircraft being overtaken by the jet plane. It is inevitable. Nothing, someone has said, is as strong as an idea whose time has arrived. And at this Commodore Show — though you could still buy more software and peripherals for the 64 — it was the Amiga that starred and it clear that from now on the Amiga, especially the 500, will be the major focus of the Commodore world.

The Amiga dominated the Show. There was a substantial number of new products for the Amiga that were being introduced at the Show, ranging from high level business products like the X Cad computer-aided design system that for a few thousand pounds offered a system that could cost £35,000 on another computer to classic simple shoot 'em up games from Anco at £9.95. Yes, £9.95 for games software with all the Amiga graphic sharpness thrown in.

There was also a great deal of other interesting Amiga material, including what probably got the prize for the most looked at by the largely male thousands of visitors, Robtek's Hollywood Poker, a strip poker package that really does use the Amiga's almost pin sharp graphics quality to highly provocative advantage. There was always a crowd around Robtek's stand gazing at it with what we will generously assume to be technical interest.

Low prices

Even though the Amiga was the major influence on the Show, it must not be thought that the 64 owner was not catered for. In fact there was a great deal that any Commodore computer user would enjoy — especially the prices. One major aspect of the Show was the amount of discounted software that was available. Recent games like Martech's Tarzan and their own Strip Poker of Samantha Fox were selling well at only £3.00. On one stand, Postronix were, believe it or not, giving away a free camera with up-to-date games priced around £8.00. Adamsoft had very low priced educational software and products such as disks and books could be bought well below the usual prices.

There were of course many familiar names at the Show — names that in many cases have been present at all the Shows of recent years. Supersoft was there with a new accounting program called Cashbook. Evesham Micros did a roaring business in their swish Slimline case to turn the C64 into a 64C lookalike. Datel had its Action Replay cartridge and Disk Demon parallel disk system. The AMX mouse on the Advanced Memory Systems stand attracted considerable attention, as did Trilogic with its Expert Cartridge. A somewhat surprising success was the "Load It" datasette modification, which, we hear, is also to be applied to sound cassettes in what is reputed to be a million pound deal.

New products

Wigmore House produced two new products: a GEOS compatible mouse and a mouse interface for the C16 and Plus/4. Two market leaders did provide something for the clearly fading C16 market with Spy versus Spy from Tynesoft and the first public showing of Anco's long awaited Summer Games.

Kingsoft, the German programming company who created for Anco the smash C16 hit Winter Games, gave CCI a special demonstration and we were highly impressed at the exceptional quality of the new game. From CCI's 1986 Oskar-winning Programmer of the Year Udo Gert.

In the Theatre

Database, the Show's organisers seem to have made great strides in the running of the Show. Everything was professionally smooth and the crowds moved about with considerably more ease that at the same time last year. They, and Commodore, had clearly spent a great deal of time this year planning just how to make it all work and the results of that hard effort showed in every aspect from the catering to the theatre. The hall size Bourg Suite at the Novotel had been set up as a full scale theatre and there were presentations running right through the three days the Show lasted. The major role was taken by Commodore U.K. itself which made many presentations of the brilliant graphic qualities of the Amiga which were seen to excellent advantage up on a big screen and with monitors around the hall. Tom Hart, CBM's Consumer Sales Director, revealed himself as possessing a touch of real show business talent in the presentation — an impressive performance. With the help of the non-stop work of Commodore's glamorous Marketing Services Manage, Amanda Cridge, and a pop promo style video from the German band 16 Bit, the there were plenty of admiring gasps from the packed audiences at the Amiga marvels. Precision Software also made a strong impression with the presentation of their new Superbase Professional for the Amiga as did Haba Systems with their Amiga products. Other presentations were made by Electric Software and Micronet who are now extending the Plus/4 offer they made through CCI to Amiga users.

CCI helped organise "Computer Power" a special music presentation featuring the Amiga that was sponsored Gremlin Graphics, whose Ben Daglish, composer of the music for Aufwiedersehen Monty, was one of the stars. "Computer Power" was created and directed by CCI's Marketing Manager, Max Jacobson-Gonzalez and will be shown at the Edinburgh Festival. So anyone who missed it at the Show can catch up with it there.

On the first night of the Show at a party held in the theatre. CCI presented its 1986 Oskars to the worthy winners. Gremlin's Tony Kavanagh collected it their three Oskars and three went to Anco. Firebird's Sentinel took the best game of the year award and is still, we heard doing well in sales throughout the world.

However, even outside the Theatre there was the sense that something special was happening. The Show was originally planned for May but postponed to June to allow it to coincide with one event — the public launch of the Amiga 500. At the same show last year, it has then been the turn of the unveiling of the Amiga 1000. Enthusiasts, and CCI has been counted among them, hailed this new Commodore computer then but the Amiga 500 is special is another way. This time there can be no mistake that it is a home micro. Commodore call it "The Ultimate Home Micro", which we take to mean the latest not the last...

Juggler

The Commodore Show reflected that sense of a whole new dimension opening up for the Commodore world. Yes, it was great last year to have sparkling pictures of King Tut on the Amiga's screen but how many home users could afford the Amiga 1000's then price tag of around £1500? But now the 500 is within reach and already at the official price of £499.00 you could get it with a monitor and other goodies at no extra price. The Amiga 1000's price has plummeted too and the Amiga Users Group had 1000's on sale for £449.00 including VAT.

It was that sense of the exciting and very close potential of the Amiga that made the Show. It brought some of the outstanding products shown there deliciously near even to the largely 64 audience. Extraordinary things like Scicom's touch screen Amiga that will work through 10mm thick glass; the Word Perfect professional level word processor that can be run either as the Amiga version or the MSDos version on the same Amiga 2000 — and the Amiga version is £150.00 cheaper than the IBM compatible one... a sign or things to come perhaps, and many others. There was all over the Show the now famous Juggler 3D Amiga demo that stunned the crowds. We at CCI have seen it many times but have not published pictures of it because we have considered that on paper there was no way of doing it justice. But at the Show on CCI's stand, it drew as many watchers as Bulletin 1000 did and clearly amazed thousands of visitors. But better than the demo, brilliant though it was, was the package that the Edinburgh Amiga Centre is marketing. It is a program written by the creator of the Juggler to let you do the same thing with your own designs on the Amiga and it costs... just £10! Another extremely encouraging move was the fall in the price of Amiga software. Games like Mindscape/Mirrorsoft's Defender of the Crown have come down from above £35 to below £30 and many other games for the 500 were dropping below the £20 mark. And, of course, there was that surprising £9.95 Anco Amiga games range. The talk at the Show was that by Spring 1989. £9.95 will buy you lots of full price Amiga software and for the 64 normal price will be around the £5 level.

Although the 500 offers 512K, the hunger for memory of Amiga users was also being satisfied by new and small drives from Robtek and other companies at well below the £199.00 price which the 3½ inch drives originally commanded. One half-height drive was being offered at £99.00 — cheaper even than those available for the 64!.

Many among the crowds leaving the Show — unusually there appeared to be more people at the Novotel on the Sunday than the Saturday had the now familiar Amiga 500 boxes being taken home under the visitors' arms. And there were surprisingly young buyers considering that, even at £499 the 500 still isn't yet pocket money level. So what was this time last year a dream is beginning to seem very far along the road to becoming a reality. The 64 owners who arrived in one computer dimension were carried into another, leaving with a new picture of what their own computer future was likely to hold.

This Commodore Show was like no other since the VIC 20 was overtaken by the 64. It presented an image of the future that was undeniable even by the most dedicated 64 owner.

However, the biggest bargain advertised in the Show Guide, sadly turned out to be a myth. A virtually empty rather enigmatic stand which didn't seem to have any real products was, it seems offering Digiview, Newtek's video digisers for the Amiga for £1.99! But when hopeful buyers approached — Digiview sells for nearly £200.00 — they were told it was all a big mistake. Some people seemed to believe that the whole thing, company and all, was some kind of a practical joke.

'Selling like hot cakes'

Whatever else was taken lightly, the Amiga is now a serious factor in the whole of the Commodore world. One German visitor told us that the Amiga 500 was "selling like hot cakes at prices as low as £400 including Vat". It is believed that in the U.K. every 500 CBM has been able to supply is already sold. Every software house represented at the Show was already committed to Amiga products and seeking more programmers to provide extra Amiga power software — no easy task to find.

There is to be no other Commodore Show until next year. And by 1988, at the Novotel, the Amiga will have taken command. The 11th Show may not be called it, but it will be in reality the 1st Amiga Show.

See you there.

Scrolling up and down

"Ain't no jail strong enough to lock me, ain't no man big enough to stop me, never...", sorry, must stop listening to J. J. Cale records while preparing material for CCI.

This series of articles on interrupts is taking on all the ingredients of an arcade game. From our first steps with using the function keys to change the colours of the screen, to moving sprites around the screen under interrupt control, to scrolling the screen left and right and now, in this article, scrolling the screen up and down as well. This doesn't mean that we're going to end up with a finished game, nor that all the independent pieces of code are going to be compatible when put together, but the baseline has been established and you can fiddle about with assemblers to your heart's content to try and get something working.

The good news, however, is that this up and down scrolling routine is totally compatible with the left and right scrolling one presented earlier. They live in different parts of memory (the 4K block from $COOO to $CFFF, or 49152 to 53247) on the Commodore 64, and can be called up independently of each other, as we shall see. Both routines are fairly short (about 350 or so bytes each) and both allow control of some 240 by 15 characters of information. In other words, six screens when scrolling from left to right, and about nine and a half when scrolling up and down.

Why 240 by 15? Well, 240 was first selected for horizontal scrolling because six screens of information seemed to be a reasonable amount to have scrolling around, and 15 lines of a screen looked like a decent window sized area for displaying that information. When the time came to write the vertical cousin of that horizontal routine I saw no reason to change those parameters, and so you will end up with a 240 by 15 character window scrolling up and down the screen. You can change the width (15) reasonably easily, but the length is a different matter, and I would suggest that you leave that as it is. Six screens ought to be enough for anyone.

Now unlike the previous horizontal scrolling routine we don't need to worry about raster interrupts this time. The moving of a screen up and down looks smooth enough without having to resort to that, and since we can increase the speed of scrolling to a ridiculous amount no one's going to notice whether it's smooth or not: it will just scroll past out of sight so fast that you won't be able to see what's happening!

The only way in which interrupts might come into play is if you wanted to make the whole scrolling section of your 'game' interrupt driven as well as the rest of it. I leave that up to you, but if you do try and do that you will need to worry about the rate of interrupts as well as the particular types of them.

As Rae West tried to tell us in the April issue, but as unfortunately beset by a typing error, you'll need to POKE 56325 with something in order to alter that interrupt rate. Lower values speed up the rate, so that the 64 is going off to check on interrupts much faster than its usual once every fiftieth of a second or so. POKEing that value with a one produces a strange 64, believe me. POKEing it with anything over about sixty proudces a very slow interrupt rate and slows the whole thing down dreadfully.

Starting to scroll

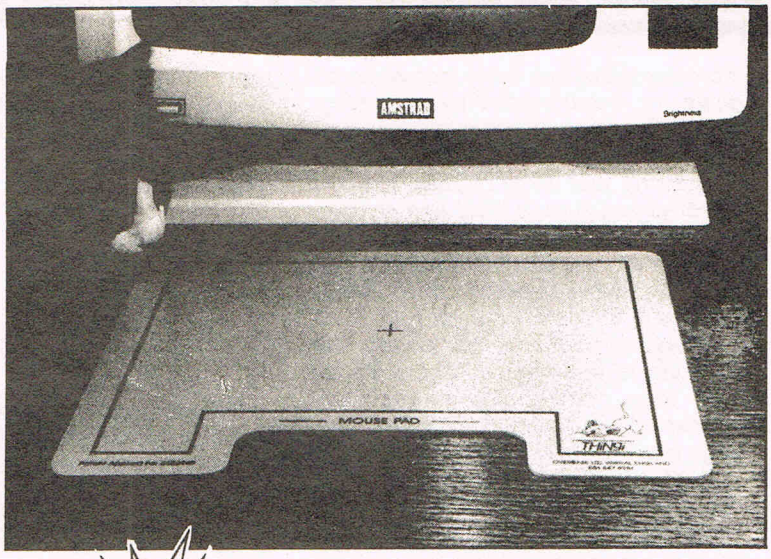
Where to begin writing such a program? Obviously we're going to need a routine that will (when scrolling up) take the row of characters on the second line of the screen and store them on the first line, take the row on the third line and store them on the second line, and so on. If we weren't looking for up to 240 characters of data this wouldn't be too difficult a task, but when we reach the bottom line of the screen (row 24) and scroll that up to row 23, we then need to find out where the data is going to come from that will fill up that bottom line.

Ditto when scrolling down. Put the data on the twenty third line on to the twenty fourth, the data on the twenty second line on to the twenty third, and carry on until all the data on line one has been shoved down to line two. Where then do we get the data that has to go on line one?

Both problems are solved in the same way, by having a memory location storing the current line of information that has to be displayed. Since we're shunting 240 lines of data around this memory location will obviously contain a value in the region of zero to 239, and could be

THiNGi©

computer copy holder



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incremented by one every time we scroll down, or decremented by one every time we scroll up, in order to keep track of where we currently are.

Knowing that we're on, say, the one hundred and twenty third line of data, another routine must be written that will tell the main one where the data for that one hundred and twenty third line is kept. It's all very well storing it in memory somewhere, but unless the program is informed of where it's all kept then nothing but garbage will appear on your screen. Scrolling garbage maybe, but still garbage.

Finally, we'll need a routine to tell us not only where the data is kept, but where it has to be put on the screen. We do not, for example, want the data for the one hundred and twenty third line to be stored at the top of the screen if we happen to be scrolling up at the time. It might look pretty, but it would also look pretty stupid.

These last two routines are quite short, and the final two blocks in the program contain all the data necessary to tell the main program a) where the data for all the screen displays has to be stored on the screen, and b) where it i all being held in memory. You may recall the horizontally scrolling routine held its screen data in memory locations $6OOO to $6FFF. In order to be compatible with that this vertical scrolling stores its data in locations $5OOO to $5FFF. It doesn't actually take up the whole lot, but better safe than sorry and we might as well stick to numbers that are easy to remember.

The routine itself

In all its glory, the up and down scrolling routine.

As with the horizontal scroller BASIC loader this one is divided up into a number of different blocks as the various parts of the code are shoved into their correct places in memory. Unlike that loader, however, there are only four blocks to this one, and the data block count for each one is as follows:

Block #	Count
1	24844
2	27485
3	3941
4	3450
	59720

The start and end locations for each block are stored in line 100, so to check block one you could have a line of code like:

```
B=O:FOR I=50656 TO 50829: A=PEEK (I): B=B+A:NEXT:PRINT B
```

and provided B was equa to 24844 then the data for block one has been entered correctly. Do the same for each block, and SAVE the program to tape or disk before we actually try and use it. Now, to scroll a screen up, we can enter SYS 50912, and to scroll everything down we enter SYS 50656. This, as you will see, scrolls all 240 lines of the thing. If you want to scroll just one line at a time you'll need to disassemble the code and change a JMP to somewhere into an RTS. It's in there, all you've got to do is find it.

You might feel that the screen isn't scrolling fast enough, in which case you will need to:

```
POKE 50807, O:POKE 50809, 254.
```

to give you the fastest possible scrolling speed in the downwards direction, and:

```
POKE 51063, O:POKE 51065, 254
```

to do the same for the upwards direction. Using other numbers will obviously alter the rate of scroll as you can find out.

All well and good, but the only thing being displayed on the screen is gibberish, and so the following small program does the same for vertical scrollinng as the tiny drawer program did for horizontal scrolling in the other article.

Type it in, save it, and then run it. The program will stop, and by using the ordinary cursor keys you can wipe out whatever is displayed and draw in your own design, remembering that you are working on a screen that is 15 characters wide. It's only a simple program so you'll have to keep track of that for yourself. When satisfied with screen one, move the cursor over to the right hand side of the screen and type CONT to let the program take over again and put the screen data (reverse spaces are a good idea) into the correct part of memory. The whole 240 lines are stored, as we have seen, from $5OOO to $5FFF.

On the other hand, if you've already got a horizontal scrolling screen that doesn't employ graphic characters and uses just plain reverse spaces instead, the following program will turn everything on its head and save you typing in a whole new lot of stuff. It won't work for anything OTHER THAN reverse spaces.

Load in your horizontal screen, then load and run this small program. Then you can save off both screens together, using an assembler of some kind.

Conclusion

As with the horizontal scroller, this was mainly written to show John D. "give me a broken motorbike and I'll return you a dream machine" Ryan, and you'll be pleased to know that he was suitably impressed with the results. He also expressed an interest in background music, saying that "that Hubbard bloke" always has ten minute musical soundtracks AT LEAST in every game. Background music? Ten minute soundtracks? Another article? I feel an interruption coming on!

P.G.

```
SCROLLING UP AND DOWN


10 FORI=1TO4:READS(I),E(I):NEXT
20 FORJ=1TO4
30 FORI=S(J)TOE(J)
40 READA:POKEI,A
50 NEXTI,J
100 DATA 50656,50829,50896,51085,52128,52183,52384,52415
200 DATA174,032,197,224,240,208,001,096,162,025
210 DATA142,032,197,076,240,197,174,032,197,232
220 DATA142,032,197,224,240,208,005,096,000,255
230 DATA000,255,162,048,189,160,203,141,034,198
240 DATA189,161,203,141,035,198,202,202,189,160
250 DATA203,141,031,198,189,161,203,141,032,198
260 DATA160,000,185,012,004,153,052,004,200,192
```

CONTINUED ON PAGE 124.

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Comment

Your hero is back with another welcome and all the chat, gossip, news and reviews in the world of Adventure. Let's kick off with another round of name dropping, because I attended yet another little get together not so long ago, this time on behalf of Microprose and Origin Systems, who have announced a marketing and distribution tie up.

Microprose as you know are famous for Gunship and some wonderful strategy games culminating in Vietnam, a truly huge simulation of that terrible conflict. Origin, as well as producing the Ultima series, which we all know and love have quite a stable of other role playing games (one of which called Moebius, was reviewed in the June CCI). The venue was a boat on the Thames where lunch and drinks were had by all, along with a lot of nodding of heads and shaking of hands and all the other things you do at these things. During all this controlled mayhem I managed to interview two people who were responsible for the whole show, Stuart Bell MD of Microprose and Robert Garriott President of Origin. Robert, whose younger brother Richard was responsible for creating and writing the Ultima series, is very positive about his company; "we at Origin" he said "believe that our products take from 50 to 80 hours to complete, and so the value compared to an arcade game is incomparable. Each game takes around 3 years of man hours to produce, and when you think of all the bits that make up the package as well it makes us proud to be able to have a product like that". Pure American marketing spiel that, but he does have a point, in that all their games (like Infocom) have some nice extras that must make all the difference. He told me that there are five new releases planned for this year, Ultima V, (you'll read about it here first I promise) Ogre, Space Rogue, Auto Duel (see the review in this issue) and Moebius. All these titles are role playing interactive games and are disk only. They are also writing their first text only adventure entitled Rager, and it's written by Mike Berlyn who was responsible for Infocom's Suspended. As a parting word, Robert said that they will also release rewritten versions of Ultima I and II which have been updated with better graphics. With a "see you at the PCW show", he was off to do some more shaking of hands.

Stuart meanwhile, was enthusing over Pirates, and how it will change the face of strategy simulations as we know it. He was also oozing marketing signals over their new follow up to Gunship, which will be another flight simulation that has "such state of the art graphics that you won't believe what you are seeing!"

Anyhow, a good time was had by all, and at close of play, I returned grasping a copy of Auto Duel, to enlighten you on its merits.

This month there is as promised a large hints section in which I hope you find something to help you on your way, it is not in code so you have been warned, however if you feel that the hints should be disguised so as to not let you inadvertently look at a clue you didn't want to write and let me know.

Adventure News

Two New Adventures from Infocom

It seems that since Activision's take-over Infocom have been more prolific than ever, and are releasing new adventures at a rate of knots. **THE LURKING HORROR** is a tribute to classic horror writers like Steven King and H.P. Lovecraft and is dedicated to such novels as The Shining and The Exorcist. It is in fact Infocom's first interactive horror story, written by my old buddy Dave Lebling. In the story, you have enrolled in the George Edwards Institute of Technology, and are baffled by the stories about the old campus basements and storage rooms. You have heard about the decrepit underground tunnels, and have vowed never to go near any of it. But of course you do, as a strange force draws you into the dark nether regions of the institute. (pause for effective screaming).

The other new title is a sequel to **PLANETFALL** which has been written by the original author Steve Meretzky and is called **STATIONFALL.**

The unforgettable robot Floyd joins you for an adventure in which the survival of the entire galaxy rests in your hands. You are enlisted in the Stellar Patrol, your heroics in **PLANETFALL** earned you a promotion to Lieutenant First Class on the paperwork task force. Your life is as tedious as ever. You hear that you have been assigned to travel to a nearby space station to pick up a supply of forms, and are set for a very boring journey when you discover that your companion is mischievous Floyd! When you get there all is not well, the place is deserted save for an ostrich a balloon creature and a robot named Plato. The captain's log describes a breakdown of machinery and even Floyd begins to act oddly.

Both games show a new line of packaging for Infocom, gone is the library book look and the grey pinstripe covers, to be replaced by a slide-in box and bold cover design. All the usual bits and pieces are present though and will be reviewed in full next month.

Nuclear War Game from Activision

Activision are set to release a game called High Frontier which is a strategy wargame based on the construction and use of the proposed American Strategic Defense Initiative (otherwise known as SDI or Star Wars). You are in

Adv

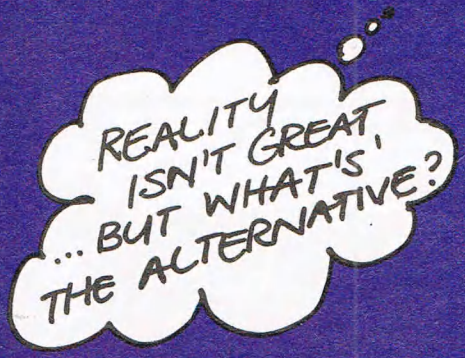
charge of the development and use of the SDI system. Eventually, depending on how effective your preparations have been you will be required to repel a Soviet nuclear attack.

Classic Quests Arrive

Classic Quests believe that adventures with graphics are like crosswords with pictorial clues, that's why their adventures are pure "unadulterated text". Every Classic Quest comes with a sealed clue envelope and useful memory save facility. Each adventure is graded in difficulty, so a beignner can work through the range starting with the easiest and finishing with the most frustrating. As soon as Classic Quests send me the range, I'll let you know.

Intellicreations Joins Electronic Arts

Remember Alternate Reality? Well the producers of that fine game, Intellicreations, have joined with Electronic Arts in a major distribution deal, that will mean that their follow up Alternate Reality — The Dungeon will be available in Britain shortly. In Dungeon you continue your journey in an underground world beneath The City. There you will travel through four levels of dungeons meeting fearsome apparitions and consulting with powerful wizards who will lead you to solve the mystery of the Alternate Reality.



Letters

Dear Andy

I have writing to you as a last resort. I am searching for the address of a software company called Severn Software. (I have written to no avail). The text adventure game I am playing is called Mystery of Munroe Manor. If anyone knows of their whereabouts, or who has succeeded in completing the game I'll be very grateful.
Carla Perkins, Royston

Does anyone have the answer? Sorry Carla, that is one adventure I have never played although I have heard of it. However if someone does know the solution, write to me, and I'll forward the letter to Carla.
AM

Adventure Hints

CASTLE OF TERROR

Constantly getting burnt to death? — move the sack out of the way.
Can't find the locking pin?... The rung deserves a closer look.
Is the Old man sulking?... Talk to him first, then buy him a drink.

MINDSHADOW

On England
End of alley off Baker Street and search sleeping man. Take hat and money. Go to fisherman and buy pole. Fish debris at pier and catch newspaper, examine it and think "Arcman". Go to tramp on Airport Way and buy "Byword". Go to Ricks and give hat to woman, go east to bar and examine drink the waitress brings. Follow man. In restroom think "Tycoon". On way out get hat and examine it. Go to store and say "Chandralt" to clerk. Buy passport and take it, go to airport and board plane to Luxembourg.

THE PAWN

Get some lead?...You need the help of a sharp instrument.
The Alchemists... just do what they ask you to do.
Stuck in the Paper wall room... try ripping the wall, you'll need to climb down a rope.
How to Kill Kronos... The bottle needs to smash, nothing that a little bit of muscle wouldn't cure.
Getting past the Dragon... He is blind really, point out to him the humanoid shadows lurking in the shadows. He may think you are Kronos if you wear his clothes.

BORROWED TIME

Keep getting killed at the start?... go east, hide behind chair, run north, lock the door, run up stairs, break window, get shard of glass, go out window, cross wire, cut wire, go east.
Goons chase you when you dig up suitcase?... Run north, run west, run west, run west, hide in trash, search trash, throw bone to barking dog, then run east away from goons.
To win you need the suitcase, report, folder and scrap of paper as evidence to arrest Farnham.

LAPIS PHILOSOPHORUM

In order to cross the river in the west, you must make the ferryman aware of your presence. Get dry faggots (from the depression south of the mountain) and fresh leaves (south of the raft back in the forest) and you make a fire at the ferry hard. The leaves produce such thick smoke that the ferryman crosses over. The path on the other side leads to the monastery, which you enter by using the key, which was cast from the key mould found in the try by the bridge.

...ture!

Adventure... CONTINUED

TASS TIMES IN TONETOWN

At the Well... (if Ennio says "I smell snarlmeat" don't go down, wait 15 times) go down, west (wear mask) west (do not press button) read plaque,n,n,n, go up,e,n,unlock gate (do not open it) then go s,w,d,s,s,s,e,e,e,u,e,s,w.

SORCERER OF CLAYMORGUE CASTLE

To open the stone door, squeeze towel, and cast the seed spell. The lava will get your towel back into shape.

ADVENTURE QUEST

To defeat Dracula, save eating the onion until he attacks you.

SPELLBREAKER

In the dark room, down is the only way out. *Stuck at the lava?* You should figure out how you can use the gold box. It does have an interesting property that you might be able to use. Try leaving it behind.

Can't get the vault door open? The cube from the outcropping will enable you to do a "rezrov" spell which will open the door.

THE HOBBIT

to get from the dark windy passage to the ring, go sw,d,wait for goblin,n,se,e,take ring. To go from ring (lake) to Beorns house go n,sw,n,se,w,n,d,s,w,e,u,e,e.

Reviews

AUTODUEL

Origin Systems £14.99

Imagine a world where the only form of employment is driving an armour plated car full up to the brim with weaponry along hostile roadways fighting any other driver on the road, in order to deliver cargo from one city to another. Then, as a relaxation do battle in a city's arena pitting your car and driving skills against many other for a prize of fame and fortune. This the world of Autoduel. You begin with $200 and just your legs for transport, which in Autoduel is decidedly unhealthy, so you need to get cash quick to buy your first car and then begin your Duelling career. New recruits start in the arena on "amateur night", where you get given a car to use on the track, against five other hopefuls. If you manage to defeat them all you win $1500, and it's with this bounty that you get to create your own vehicle.

As in all role playing games, your character develops as you progress into the game, and in Autoduel the same applies. In each city you visit there are a number of locations to enter, where you can listen for rumours of new driving jobs, or stay for the night, or get repairs, sell some spoils from cars you have defeated in the form of salvage, and buy new weaponry.

You can even visit the FBI and become an outlaw chaser, clearing the highways of all the rogues and bandits lying in wait for other cars.

This is a world that was created in the first instance by Steve Jackson, in a board game he devised called "Car Wars", and Origin have used the Ultima team to convert it into a computer adventure Project.

I was impressed by the package, which comes with a detailed manual, full colour road map of North America, and even a mini pack of real tools (for all those little breakdowns).

The only flat tyre on the landscape for me was the dreadfully slooooow disk operation used between practically every feature. The drive clunks and clinks at every opportunity resulting in tedious delays and frustrating playing.

If you can stand that then Autoduel has to be thoroughly recommended.

Personal Rating 7

TREASURE ISLAND

Mastertronic £1.99

There is so much detail in this adventure it's hard to realise that it is only a budget cheapie. It is a graphic/text game played in real time where in addition to all the usual adventure commands you can run or walk, or swim or wade. Each take up different amounts of energy which must be replaced by eating or sleeping at the most opportune times. Also the amount of objects you can carry differs according to the weight of each item, so careful selection of objects is vital.

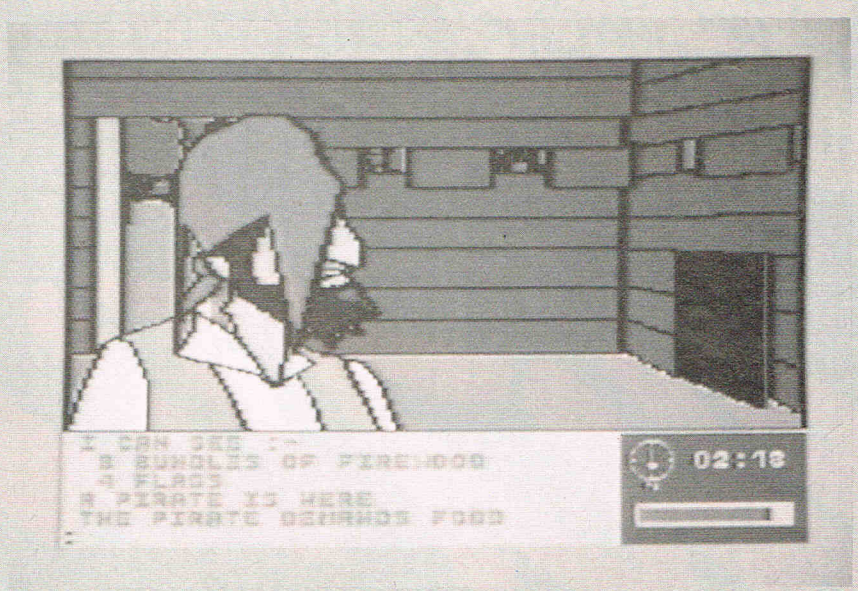
The actual storyline is about the quest for some extra treasure that you believe to be still buried on the Island, after Long John Silver et al carried off Captain Bloods first lot in the book. You play Jim Hawkins who along with our old friend Long John has returned to see where the extra treasure is hidden. You don't trust him, you don't have much food, and to cap it all there are some other pirates around with the same thing on their minds!

All you have to go on is your original map and the knowledge that dotted around the island are your previous caches of food and tools. You just have to work it all out.

An excellent game, full of atmosphere, and with so many little bits there isn't room too point them all out.

This is a must for your collection.

Personal Rating 9



Adventure... CONTINUED

MURDER ON THE ATLANTIC

Infogrammes £14.95

Infogrammes is building up into a software house that is trying very hard to launch innovative and creative adventures in this country. Both Vera Cruz and The Sidney Affair have been well received, even in this column, which is a bit more critical than most. With *Murder on the Atlantic* they have gone one better and really put some thought into the packaging.

David Crosweller, head of their British operation tells me that they had a bit of a problem convincing W H Smith to stock it as they felt it was "over the top" in size, but this is all nonsense. What you get is a Vera Cruz style box roughly 5 inches square, packed to the brim with documentation a la Infocom but better. For the detective in you it's paradise come true as thee is a set of business cards, a torn up photo, a piece of string, a micro dot, a match, a bullet casing, a ships passenger list, a telegram, 7 letters, two photos, a newspaper, a message in brail, a coded message, a top secret envelope containing two items, a map of the ship, and the faces of the 40 guests on board. Quite astonishing. What about the game itself though? Well in the true tradition of Infogrammes the gameplay is different from the norm, with little windows for the action and a side on view of the ships rooms. You move from room to room come across suspects to interview or evidence to examine, and do the necessary. Set in the 1930's it's a game of detective work mixed with international espionage, and as far as I am concerned gets my vote as best thriller of the year.

Personal Rating *9*

That's all for this month, keep solving those puzzles and sending those letters, see you next issue.

THE SHADOW OF MORDOR

Melbourne House £9.95

It's here! Oh the joy, the bliss, the looking forward to, the excitement, the putting the tape into the machine, the loading, the disappointment.

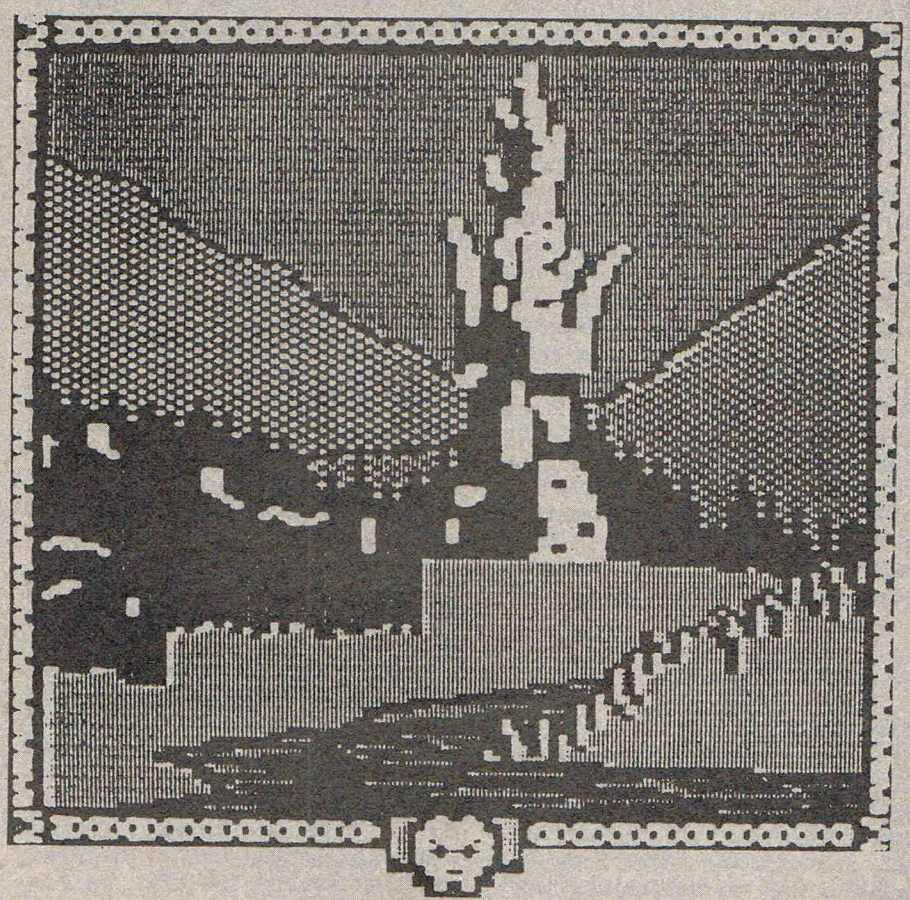
It seems that Melbourne House don't know when they are on to a good thing. There they were, with the rights to a story that began the adventure game as we know it, and with the computer buying public salivating at the prospect of getting the game... they blew it. Lord Of The Rings is a classic tale, a mighty work, and one which has hit written all over it. So what happened; Lord Of The Rings Part 1 was slow, bug ridden and a horror to map. It was also expensive as a copy of the book came with it (one of the stipulations from the Tolkien estate).

With mixed reviews, but mostly towards the lower end on a scale of ten, the game sold with the promise that well, the next part will be better. In truth, the bugs are gone this time around thankfully, but the implementation is certainly the same, slow response times, horrific mapping, and graphics that you can either have at the start or not. There is no facility to turn them off and on at will, which for some people is a must, including me. I began with having graphics obviously to check them out, very pretty, nothing startling but better than Part 1. A long wait while the picture is read in, so go and make a cup of tea. OK, I've seen the graphics but I want to play in earnest now so to quicken it up I'll turn them off. No way Hosé, you have to load it all in again and say "n" to graphics when asked.

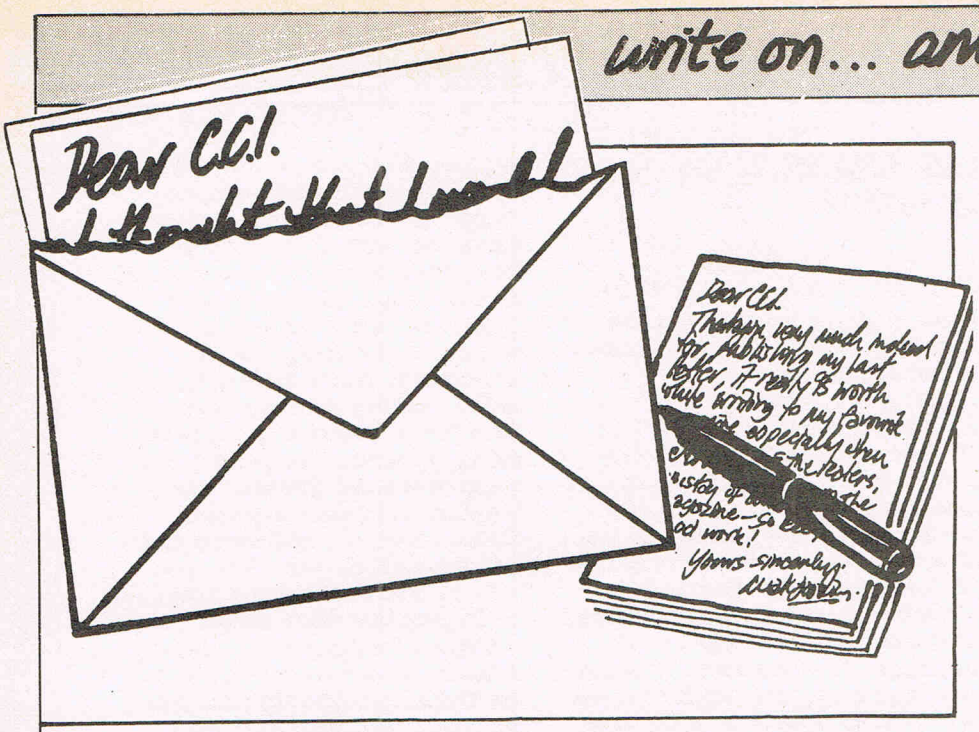
Anyway for the record, this part takes up the tale of the Hobbitses (as Gollum would say) after they reached Loth Lorien and lost Gandalf in Part 1. This time they are at the edge of Lake Nen-Hithoel from the journey down the river Anduin. Just Frodo and Sam remain from the party having secretly gone on alone.

I cannot hide my disappointment at this average game, as I expected a lot more from the team that led the way with the innovative Hobbit but such is life.

Personal Rating *3*



write on... and on... write on...



Dear C.C.I.
I have been the owner of a Commodore 64 for some time now having upgraded from a Sinclair ZX81 (16K).

One job which I use my machine for is to keep track of my current Bank account. In this respect, the ZX81 was ideal when used with Sinclair's 'Bank Account' program. This program, although very slow, was extremely good in that it could store data sufficient for one complete years banking. It took standing orders and automatically updated without needing a further input of the same order. I found the program to be easy to use and it provided me with all the facilities that I required of a Bank account program.

I now require a similar program for the 64 but am unable to find one that has exactly the same facilities as the Sinclair program. I have tried Commodore's 'Money Manager' and found this to have too many facilities for just running a current account. This makes it difficult to use when one does not require to keep the type of record available on the program. I have also tried 'Checkbook Balancer 2' from Green Valley Publishing. This is the nearest program to my requirements that I can find. The only drawback to it is that it does not automatically update standing orders.

I would be grateful if you can perhaps tell me if a program of the type that I require is available and from where.
Yours sincerely
M. J. Hill

Can anyone help M. J. Hill?

Dear C.C.I.
Having just flicked through some old issues of CCI, I can't help but noticing that there are a great deal of letters complaining about your magazine. It is true. Some people don't like your magazine. They say that they don't want to hear about the Amiga, that they want more games reviews, and all sorts of nasty things.

I am not that sort of person. I get your magazine because I want to read about future developments, the Amiga, interesting applications of the computer, and putting the computer to use doing something sensible. Before people start thinking that I am a boring businessman, with plenty of money, I am not! I am a 17 year old 6th former. I like playing games, but I am choosy. I know that instead of spending £10 on an over-hyped game, I could spend that money on something that will probably give me more enjoyment — going out etc. I wish to find new and interesting applications for my 64. I like hearing of silly peripherals, like shoes that can interface to a computer. I like reading about developments in the Amiga world, because I am seriously considering the Amiga 500. Before I do this, I want to know what state the 68000 scene is in. At the moment, it is caught in a vicious circle — The computers cost too much. The software houses set prices of £25+ per program, the computers came down in price so more people would buy them, but the software houses didn't follow suit. Therefore, home users will not upgrade because they will not be able to afford the software. Think of it like this:

Commodore 128, disk drive, Dolphin Dos, GEOS 128, mouse, Centronics interface, RAM expansion . . . Price . . . about £570. Average software cost . . . £8.

Amiga 500 (with 880k disk drive, mouse, 512k RAM, decent O.S. decent interfaces — a heck of a lot better than a 128) . . . Price . . . about £570 incl VAT. Average software cost £30.

When will Mastertronic bring out Amiga games for around £5? This will really be a turning point in the home computer industry. The jump from 8 to 16 bits will be done. Home users will buy Amigas, and will be able to afford the software.

As for the Magazine. It's good, but it could be better. If you are going to have games reviews, a colour screen shot is better than none at all which is better than a cartoon scribbled in 3 minutes, which is better than a pack shot. If you are going to do something, at least do it well. Put a bit of pride into the magazine. Revamp the rating system.

When I originally subscribed to Commodore Horizons, there was an Amiga section in the mag. I now am subscribed to CCI, and find that if I want to find out about Amigas, I need to splash out more money. Don't waste valuable pages in the magazine.

I hope that you can find some valuable space to print this letter in your magazine. Perhaps you could cut out a few drawings to do it.
Yours faithfully
Simon Hewison

Dear Simon
You are not the only one who thinks the Amiga is probably too expensive but your comparison is very interesting. Your comment on the cost of software however does not take into consideration that the development cost of games on the 68000 is at present for higher than on, say, the 64, where the programming expertise is spread worldwide. For example one person can program a reasonable 64 game in under 6 months. For an Amiga it can sometimes take 2-3 years hence the increased cost. As for the magazine, we have a great deal of pride in it. We believe it needs the kind of balance of articles you mention. It also needs a balance of visual *entertainment and that includes screen shots and cartoon style illustrations. Revamp the ratings? Okay, any suggestions?*

Dear C.C.I.
Just a note to say congrats on the mag. It gives something for everyone even a 33 year old like me.

Any chance of extending some of the competition deadlines? We get the mag about 2 months after the closing dates (do it as an Aussie Bicentennial gift).
Yours sincerely
J. D. O'Connor, Wallsend, Australia

Dear J. D.
Sorry it takes so long to get CCI to you. Maybe we'll send Lady Romayne Downunder, our Production Princess over each month carrying it. As a special Bicentennial gift we will extend the deadlines for the next month's competitions to give you a chance. And if we can, next month we'll run a special Australians only comp. That suit you, Bruce?

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Dear C.C.I.
I own a Plus/4 and I am very grateful for the effort you put in for this computer. Every month there are more and more C16/Plus/4 game reviews which is very good.

I get quite a few magazines mainly CCI (the best), Commodore User and Computer Gamer but when I read the reviews they are totally opposite. In March's issue there was a review of The Way of the Exploding Fist and it was rated Awesome and in CU it was only 5/10. I bought the game and you were right it was awesome. That has happened so many times that I haven't known whether to buy it or not so in future I'll take notice of you. Last of all thanks for a great mag (again!) and keep it up!
Yours sincerely
B. R. Parrott

Reviewing games is a very personal view of what makes a good game. At CCI we try to get a range of opinions that will tell our readers what they want to know about a games. We get quite a few letters these days like yours. So we must be doing something right!

Dear C.C.I.
I am a Plus/4, and when looking I find seven magazines publishing the C16 and Plus/4 and most had ¾ of their magazines on the 64 and 128, all except yours. If there were a medal for the best magazine, I would not give you one but half a dozen.

Please tell me something, the book for the 1351 cassette unit I found something of interest, it said of a Commodore Computer called the 116, yes the 116, and this is most like the Plus/4 except for the user port, and it's smaller, please tell me why, I have never seen this computer. I am a real professional programmer of 12 years old.
S. Steven, London, Lewisham

Dear S. Steven
The 116 is an upgraded version of the C16 only available in West Germany — which is one reason why C16 software is so popular there and really top programs like Udo (Summer Games) Gerz work on the machine.

Dear C.C.I.
When I first bought CCI I thought it was one of those big, long, boring computer magazines aimed at people who all the time spent it on programming. But it wasn't it was aimed at younger computer addicts. I was amazed to see all the things I was missing so I buy CCI every month.

The first software catalogue I got was, yes you guess it! it was CCI Softpost. I spent ages looking at deciding what to buy. My dad bought me Transformers (Activision Edition), Konami Coin-op hits, and got a free ASL Grandmaster Chess. But I a problem, in Transformers, when the Decepticons are at the Shuttle base they steal, what look like energy rods. I blast them but then how do I collect them. Also I have a problem on the Park, Energy thingies come down and the screen says Energy Bonus 1500 or something like that, and I can't collect them? Please help, I have been thrashed 150,6000 to 1545!

Emm, sorry about this, I have another problem, nope, it's not a game, its sprite programming. After spending months on end, trying to make a sprite appear, I now have this frustrating result. No matter what design it always, turns out like a balloon basket! I enclose my program. Perhaps Rae West can help.

Before I sign off, I would like to congratulate you for producing a great magazine. Keep up the good work.
Yours sincerely
Christopher Chung
P.S. I'm only 11, so if I'm to learn machine code which age would you recommend?

Any help for Christopher from all you brilliant gameplayers out there? And Christopher the correct age for learning machine code is always right now!

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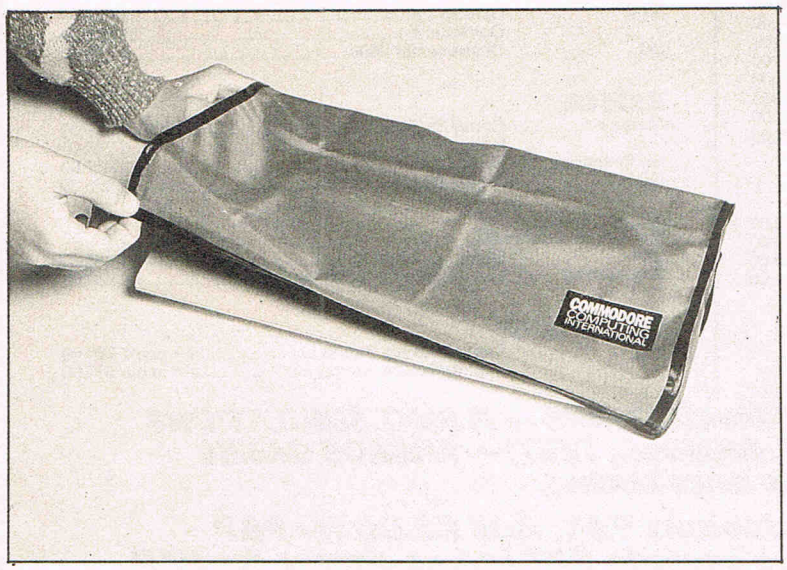

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3.1/2 in., ss, box of 10	£25.00
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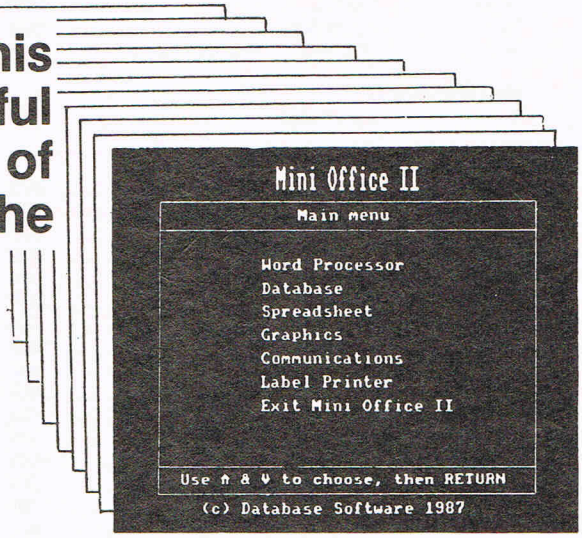
Software is not sold on a trial basis. Software sold by mail order in the UK may be returned within 7 days of receipt, provided that it is not damaged, marked or soiled, in which event the purchaser may claim a refund.

Mini Office II

Richard Franklin concludes his series of articles on the successful Mini-Office package — now one of the best selling products on the Commodore 64.



This is the final article about the use of Mini Office II and in it I will be throwing some light on the Spreadsheet and Graphics programs but first a big of news about the package:

There are a few problems that have come to our attention and hopefully will be dealth with soon. There are:

1, Loading files on the spreadsheet: When loading large files, there is a problem with the program crashing. This can be temporarily cured by selecting a large sheet size (try 100 * 40) before loading the larges size file.

2, Spreadsheet colours: on old ROM machines, the colour for the cells on the spreadsheet does not appear. This is due to the ROM screen clear routine which used to store the background colour into each location of the screen but now stores the current cursor colour instead.

3, Brother HR10 printer: When used in conjunction with the Label Printer it is not recognised (supposed to be MPS compatible).

Spreadsheet:

Setting up your sheet:

The first thing to do with a spreadsheet is to set up the way that it will be displayed. This is done via the Alter Spreadsheet option in the main menu.

The spreadsheet allows a maximum of 4000 cells with column and row maximums of 120 and 99 respectively. Each column can be set to a specific width and number of decimal places or all columns can be set globally.

Other settings that can be changed to suit your needs are:

Justification of text cells (Left, Centred, or Right). This setting can be overridden for individual cells.

Line spacing. Sets whether the spreadsheet is displayed with a blank line between each row.

Negative values. Allows you to choose whether negative numbers are displayed with a preceeding '-' sign or enclosed with brackets.

Fixed fields. You can choose whether column AA or row 01 or both are always displayed no matter which cell you are currently on.

Ready Empty cells as: Zero or empty. This is for use in formulae where empty cells are included in ranges etc. If set to empty, an error will be produced for that formula.

Using the Spreadsheet:

When you have set how the data stored in the sheet is going to look, you can start entering the numbers/text etc. This is done via the Edit Spreadsheet option and takes you to a new screen showing part of the sheet and additional information at the top. The column and Row axes are displayed in a different colur to the main sheet area to make them apart.

The contents of the cells can be in five different states:—

Blank, Number, Text, String, and Formula. The text can be justified to the left, right or centred. Strings are longer forms of text that can take up to about 90 characters and will be automatically displayed over any columns that they overflow into.

Text or numbers are entered by just typing the first character of the contents (i.e. any number [0-9] will cause the program to assume a number and any Alpha character assumes text in the default justification). Formulae are entered by first pressing F5 then entering the actual formula. The formula will be checked for Syntax errors before being accepted.

Formulae can consist of constants,

references to actual cells (i.e. AA01), and some arithmetic operations:
+ — Add,
- — Subtract,
* — Multiply,
/ — Divide,
^ — Raise to the power,
ABS — absolute value,
COS — Cosine,
SIN — Sine,
EXP — Exponent,
SQR — Square root,
TAN — Tangent,
LOG — Log to base 'e',
LOG10 — Log to base 10.

All the above will work with constant or single cells. The four other functions (**MIN, MAX, SUM, MEAN**) work on a range of cells. The range is not limited to part of just a row or a column but works on a block of cells (i.e. **SUM[AB04:AC07]** will sum cells **AB04:AB07** and **AC04:AC071).**

Parenthesis may be used to alter the normal arithmetic evaluation orders.

The manual states that formulae are calculated in the order from top left to bottom right of the sheet. This is in fact incorrect as the formulae are evaluated on a multiple pass basis and therefore you do not have to worry about where they are placed in the sheet.

There are options available when in edit mode that allow you to move around the sheet and make other changes to the way the data is dislayed. These commands are obtained from the function keys or from other keys used with either the Control key or the LOGO key (the two are linked whilst in edit mode). These commands are for such things as changing the width or number of decimal places of a single column, editing, or wiping the contents of the current cells, inserting or deleting rows and columns, goto a specified cell, inserting or deleting rows and columns, goto a specified cells, cell AA01, or the bottom left cell of the used area and changing the colours of the display parts.

Other commands which I will go into more details are:

Save sheet — Take you directly to the save sheet option of the main menu,

Copy cell, row, or column — Allows you to copy the current choice to a different part of the sheet. Formulae may be copied exactly as they are or cell references may be altered on just the row, column or both relative to where they were. This option picks up the current choice and allows you to move the cursor around pressing return where you want to copy it to. You can make as many copies as you like and pressing STOP returns to normal.

Lock cell, row, or column — allows you to lock out specific data from being changed or deleted.

All of these options can be displayed by pressing **CTRL-H** (help).

Printing out the sheet:

Printing can be done to the usual printer devices and there are few parameters that may be altered to change the final printout.

Headings allows you to choose whether the cell references will be included in the printout.

Paper width allows you to change the width of the paper you are printing to (main use would be to 132 and put the printer into condensed mode, Epson only).

Printer codes allows up to 128 codes to be sent to the printer before printing. The main use would be to send a condensed mode command to the printer to allow more information per line.

You may print the whole of the spreadsheet or just a part of it by specifying column ranges and low ranges.

Listing Formulae:

You may list all formulae in the sheet to the screen or printer.

Saving and loading:

As in the Database and Label printer, the tape storage is done using a turbo routine for speed and reliability. You can also save spreadsheet data in a form that is readable by the Graphics program. This option allows you to choose whether to save the data in columns or rows and which to use for the labels (if any). Up to 5 graphics data sets can be saved in one file. The graphics data save routine is slightly complicated to use but gives good results. I will not go into it here as the manual includes a fairly good example under 'Graphics Tutorial' on page 64.

Graphics:

This program allows you to display numerical data in a more understandable form. There are three display modes: Bar chart, Line graph, or Pie chart.

The data is arranged in sets of 20 values. There is a maximum of 20 sets available and they all use the same labels. You can enter the values directly, load previously entered sets or load data saved from the spreadsheet.

Also associated with the sets are the default set values. These three values specify the actual sets that will be used when displaying the charts.

The three chart display options go to a Hi-res screen with icons down the right hand side that you may choose by moving the highlight up or down then pressing return.

Bar chart:

This option displays the data in vertical bars on the screen. You can use just the default set one or all three default sets. The bars will be displayed along side each other and if the multiple set option is chosen, the bars will be from alternate sets. A third option is for displaying the three sets of data in a stacked way: That is, the first value of the first set is added to the first value of the second and third sets and a bar of that height is displayed. The same is done for the other values. Horizontal grid lines are available if required and the bars may be displayed with a simple 3D effect.

Once the chart has been plotted, you will be request for any text to add to the display to make it more readable. The text may be up to 24 characters long and can be underlined. Once the text is positioned (using the cursor keys), you will be prompted for more text. The text option is also available in line graph and pie chart modes.

The other options are available in the other display types as well. These are for saving, loading, and printing the picture out. These options use the settings in the Hardware Options menu.

Line chart:

This option displays the data as points connected by straight lines. Again, this can be done with just one or all three data sets. The third option on this choice is to display the cumulative graph of default set one.

Pie chart:

This option displays the data as a pie chart (segmented circle) Each value is given a different pattern with which the area is filled. After the chart is drawn, an index is drawn down the side of the display.

The pie chart can be displayed as a circle or with all or some of the segments pulled out slightly from the circle's centre. The other display option allows you to select the pattern for each segment before it is drawn.

Editing the data is done in a very similar manner to the data edit in the database and is very easy.

The data can be loaded and saved to tape or disk and again uses a turbo for tape 10.

The printouts of the display are graphic dumps to either Commodore MPS (801/803/1000 tested) or Epson and compatible machines. With MPS selected. The image is double size and with Epson it is triple size and is printed out on its side in both instances. This means that most of one normal fanfold page is take up by the dump.

That's all for our series of articles on Mini Office II. It is, we believe, a very complete package and we hope our 'mini-series' has helped those who have bought Mini-Office to use it to the full.

R.F.

The D-Channel

Later in the 1980's, a new network, ISDN, will replace the current telephone system with the U.S., and new types of peripherals and adaptors will be required to interface with the telephone network. According to a recent 144-page research report, most of the attention to date has focused upon the uses for B channels, the main transmission channels for voice, data, image and text. The report, by the U.S. International Resource Development Inc., asserts that on the other channel 'D' also remains an important resource for both the telephone companies and the users. The interfaces to access this 'D' channel represent a unexplored market opportunity.

The D channel's original purpose was to carry telemetry data, including alarm signals, and its primary function is one of network signalling; that is, there will always be at least one D channel to each subscriber to maintian network control. But the 16 Kbps D channel has far more capacity than signalling requirements will require, leading one to speculate what additional uses can be made of it.

According to Leslie Townsend, senior analyst at IRD, the D channel will provide a means of low-speed data transport for applications such as telemetry, security and alarm signalling, and remote meter reading. Envisioning both business and consumer applications, Townsend states that "the D channel primarily will provide packet-switched services including access to public-switched networks such as Tymnet and Telenet. It can also provide a means of electronic banking and funds transfer, electronic mail, energy management, facsimile, some personal computer networking, and, if it has a future, videotex." She goes on to state that "On the consumer side, the D channel may be used to provide at-home medical monitoring services, home security, utility meter reading, and stock market quotations."

Initially, it is believed that the ISDN D channel will compete with the so-called derived channels (data-over-voice, data-under-voice, and spread spectrum). According to IRD, switched digital ISDN channels, such as the wider B and H channels, will also compete with the D channel. The outcome of demand for D channel competition will depend ultimately on price as well as final technical specifications.

Townsend anticipates that D channel usage will begin on a field trial/experimental basis during 1988 and that its usage will expand to a very limited number of business customers by 1990. "I do not see this market getting well underway until 1994-1995. The years of high growth should be toward the latter end of the next decade, say, 1995 to the year 2000."

Further details on the $1,650.00 report (#713), entitled PERIPHERALS FOR THE ISDN D-CHANNEL, including a free table of contents and description, are available from IRD at 6 Prowitt Street, Norwalk, CT 06855 U.S.A.; Telephone (203) 866-7800; Telex 64 3452.

Kodak's Filmless Camera

KODAK has announced a black and white electronic camera for industrial applications with an information gathering ability claimed to be some six times greater than similar, currently available systems.

The camera, called Megaplus, takes pictures at about 10 frames a second, it doesn't use film or a conventional TV picture tube. It has a matrix of 1.4m tiny light sensitive elements on a "chip" measuring only 9 x 7mm.

When the picture image is focused on the chip surface, each pixel registers the light level at that point and generates a small, corresponding electric charge. The chip uses charged-coupled device (CCD) technology which means that the 1.4m electric charges representing the image can be read out of each horizontal line in turn, amplified and stored in an electronic memory. At any time they can be retrieved from the memory and used to build up a picture line by line in a fraction of a second on a monitor set and can immediately see the pictures.

The fact that each picture element is stored individually means that each can be accessed and processed to give particular effects. For example, blurred edges can be sharpened by turning grey levels above and below a certain density into white and black respectively.

Such processing is usually essential in machine vision applications where objects, on a production line for example, must be positively examined for faults. After image enhancement, the associated computer can more readily say if the fault is there or not.

Some cameras used in industrial automation use a line scan camera, basically a line of the small light sensitive devices (photodiodes) moved at right angles to itself across the field of view, scanning one line at a time as it goes.

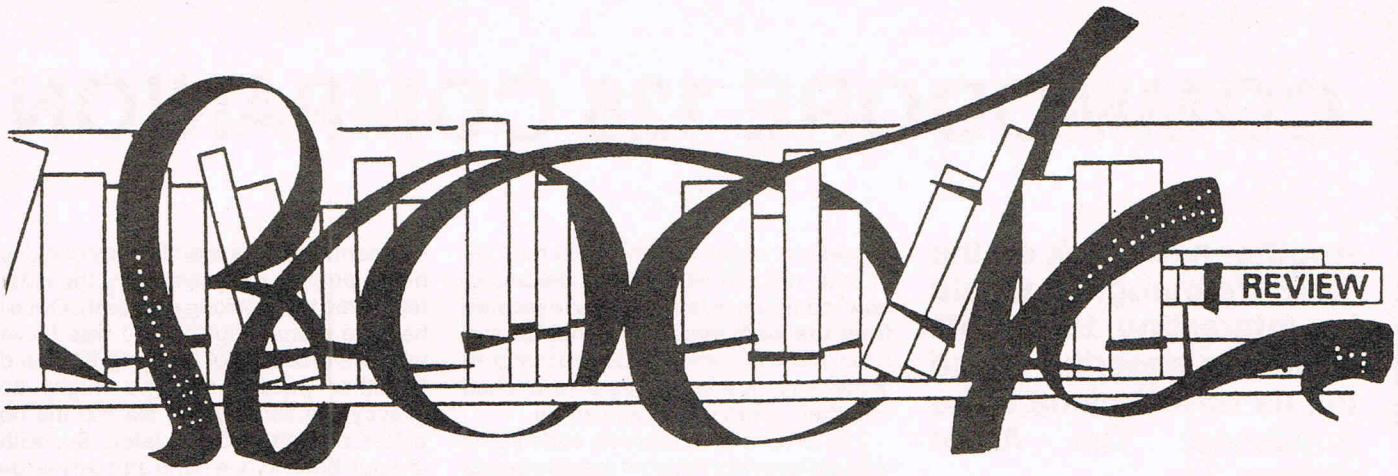
"Frame at a time" cameras are faster and although an ordinary TV camera can produce similar results, the CCD systems are much more compact and robust and do not need high voltages for operation.

Kodak has scored by greatly increasing picture definition. Apart from reducing their size, the company has crammed in more pixels by reducing the isolation space between them and making them square rather than rectangular.

Megaplus will be used where measurements on images have to be made in instrumentation, and on production lines where, by using a wider angle lens, larger fields of view can be accommodated for recognition and placing of objects in automation systems — without losing to much accuracy.

Although Kodak refuses to comment at the moment the CCD development, which came out of the Eastman Kodak research laboratories in the US, could eventually be the basis of a no-film consumer product camera of the kind announced several years ago by Sony and Panasonic. These store the images on a small magnetic disk.

Such cameras will film and develop. Each time the shutter clicks the image is stored in the camera's memory. The user plugs the unit into the back of a TV



'Evil Water' — Ian Watson — £10.95

Ian Watson's latest collection of short stories, his fourth, confirm that he is one of the more inventive SF authors. Ten taut tales, each entirely different from the others but all showing an imaginative turn of mind — and phrase — which would not disgrace any of the masters of the genre.

All the stories have previously appeared in various prestigious science fiction magazines, now Gollancz have brought them together in one volume, and very welcome they are, too.

'Cold Light' has a Conan Doyle feel about it which enhances the eeriness of the tale. It is the story of a Bishop slowly being blinded from within by a devilish light and could almost have been written in the 19th, instead of the 20th, century. Whereas the title work, 'Evil Water', a long short story, is obviously from the pen of a modern author, for it includes sex, four-letter words and descriptions of the innermost intimate feelings of the principal character which only a contemporary writer would use.

Sex is, in fact, the main theme of another of the stories, 'When The Timegate Failed'. The captain of a starship is ordered to find out how a species of aliens called Tworfs — short for Those Who Run Faster — have managed to construct a 'gate' that speeds up time travel and todo this he has — for reasons too complicated to explain here! — to mate first with one of the aliens and then with one of his own crew, a nubile brunette. How he succeeds and the results of his endeavours turn a decidedly odd tale into a very absorbing one.

'On The Dream Channel Panel' about advertisements for ambrosia-style food and nectar-like drinks, beamed from another world which is reached by a Jacobs-ladder apearing through a hole in someone's ceiling, is quite hilarious. In complete contrast is, 'Wire Around The World', in which all the military might of nations is kept within the confines of a compound, surrounded by a wire fence which needs human fuel to keep it working. It's a kind of Greenham Common situation with people prepared to die for their beliefs and willingly becoming human sacrifices to keep the wire in position and peace in the world.

Perhaps the story that illustrates Ian Watson's talent best is the shortest, 'When Idaho Dived'. An 'after-the-nuclear-holocaust' with a difference. In seven pages the author manages to combine humour, pathos, horror, and adventure a microcosm of the book itself, which is well worth adding to your collection.

D.M.

'Gollancz Classic/VG' — Science Fiction Series

The big news is that they have now introduced another imprint, called VGSF, (I assume this stands for Victor Gollancz Science Fiction, although it could just as well be Very Good Science Fiction), again very reasonably priced at between £2.50 and £2.95, which will include many of the most famous SF's authors' best known books. Eight titles were published in May including 'Witch World', by Andre Norton, 'Hegira', by award-winning author, Greg Bear, Robert Silverberg's 'The Masks Of Time' and Arthur C. Clarke's short story collection 'The Other Side Of The Sky'. Two more follow every month.

So, at last, it seems that SF buffs can go to their local bookshop each month content in the knowledge that at least one publisher realises that somewhere out there is a loyal public (some of whom don't want — or can't afford — to spend £10/£12 on a book) for whom science fiction is required reading. That public, who have until now been pretty well neglected, will I'm sure justify the faith Gollancz has placed in them.

Whereas a 'best-seller' can sell by the hundred thousand, if a SF novel sells by a tenth ofthat it's reckoned to have done extremely well. On the other hand, that much-trumpeted 'best-seller' can, after a couple of years, disappear from the bookstores shelves never to be seen again while the humble little SF story goes on selling steadily and regularly.

Victor Gollancz Books seem to have woken up to this fact. As well as their hardback science fiction books they have a 'Classic SF' imprint which is a collectors dream, a *numbered* paperback series of some of the best in SF, which includes such time-honoured stories as Arthur C. Clarke's 'A Fall Of Moondust', (No. 9), Algis Bundry's 'Rogue Moon', (No. 11), and Frederick Pohl's 'Man Plus', (No. 12). The series is bi-monthly, two new titles appear each time and all of them are priced at either £2.95 or £3.50.

COMMODORE 128 COMPANION

Another new book on the 128? We thought it would be interesting to ask its author to describe it and tell us how it came to be published. Tim Arnot obliges.

Before I start, I had better declare my interest in this product. You see, I actually wrote the book, and I also own the company that publishes it. However the powers that be within C.C.I. seem to be of the opinion that that makes me the ideal person to review it. Publicity is publicity, as they say, and who am I to argue?

OK, seriously, what is this book about? Starting at the beginning, in a chapter called 'Basic BASIC'. It deals with every statement and reserved variable available to BASIC 7.0. To make it easier to find the information you require, each command is started on a new page; thus the chapter takes up almost 200 of the 340 pages in the book. At the top of each page is a header, giving the name of the keyword, its function, abbreviation, token, and the locations in ROM for its entry in the keyword table, dispatch vector and the start of the actual keyword code. The information is given for both 128 and 64 mode where appropriate. The rest of the page merely tells you about the command, how it works and what its strengths, weaknesses and limitations are.

The chapter, 'Advanced BASIC' looks at memory organisation within the 128, in both 128 and 64 modes. it deals with how commands are directly executed from the keyboard, how variables and lines of BASIC program code are stored in memory, how keywords are crunched into their token values and so on.

The chapter on machien code starts with a discussion of what machine code really is, and moves swiftly on through a look at the 8502 microprocessor and built-in machine language monitor to the heart of the chapter, which is an in-depth look at the routines that go to make up the Kernal, Basic and Editor jump tables. The Kernal is a system whereby a routine in ROM are made available to programmers through a series of consistent jump vectors.

For hardware enthusiasts, there is a chapter devoted to the nuts and bolts and chips that make up the 128, including pinouts and technical descriptions of all the major ICs. Finally the appendices contain a complete set of memory maps for both operating modes.

Some people have asked me why this book does not deal with CP/M. This is a fair comment, and by leaving it out one third of the machine's potential is left uncovered. However, I feel that CP/M really deserves a whole book to itself, and one or two chapters really wouldn't do it justice. Apart from that, when I wrote the book, I didn't know CP/M. Ah nothing changes!

It's not every writer who publishes his own work, so why didn't I let a more established publisher do all the work? I have to admit that I originally wrote it for another publisher, but after they'd had the manuscript six months they decided not to publish (they even sent the letter telling me to the wrong address!). Once I had the manuscript back, I was faced with the prospect of hawking it around to other publishers, who might do exactly the same thing, leaving me no better of a year or so later. So, with cheque book in one hand and very large overdraft in the other, I set up BitStream Publishing and did it myself.

The thing I like most about publishing is quality control. My first book, published by a 'professional' publisher was an absolute disaster, set in 'draft mode dot matrix' (not my favourite font at any time) and full of publishing blunders. However, what I write now is produced exactly how I wrote it, and exactly how I want it, even down to the paper (which was specially chosen to allow the book to lie flat when open without having to break the spine).

Finally, though, how does my book compare with other similar books on the 128? Firstly, its one of the cheapest. It's also one of the most accurate — I haven't been able to find any factual errors (yet!). Also there is only one spelling mistake, and one small typo (I challenge you to find them!). The subjects covered are covered extremely well. Would I recommend you to buy it? yes, without hesitation; and not just because I need the storage space, but this really is a good book.

T.W.A.

'Commodore 128 Companion' — Tim Arnot. Published by BitStream Publishing, 26-28 Osborne Road, Southsea, Hants. PO5 3LT. ISBN 1 870381 00 9,

Film Review — Lethal Weapon

If you're one of those people who think that car chases, shoot out, good guys and bad guys, are the ingredients for an entertaining movie then 'Lethal Weapon' is the film for you.

'Lethal Weapon' starring Mel Gibson as Martin Riggs and Danny Glover as Roger Murtaugh, highlights the long-term effects the vietnam war has had over two L.A. cops. Riggs is young, impulsive, and unstable to the point of being suicidal due to the loss of his wife. His new partner Mautaugh, on the other hand, has just reached his 50th birthday, has an unblemished work record, and is cast as the stable family man. Together these two contrasting characters work together to solve the mystery of what starts out as a suicide, but then extends onto an action thriller that involves international drug-smugglers, which in turn involves their personal lives.

The film gets off to a slow start but soon unleashes a wealth of tough guys, excitement and violence, making it deserve its 18 rating. For those who enjoy the vibrant sound of machine guns, fast cars, and watching the good guys fight off crime in L.A., this film is thoroughly recommended. If not, we would still recommend seeing this film as the plot is totally unpredictable. If you are like us, you will be hanging onto the edge of your seat, trying to guess what happens next, and finding out your guess was 100% out from the truth. On the whole, 'Lethal Weapon' gets the four thumbs up from us.

K.M. & R.J.

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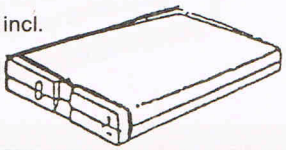

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C64

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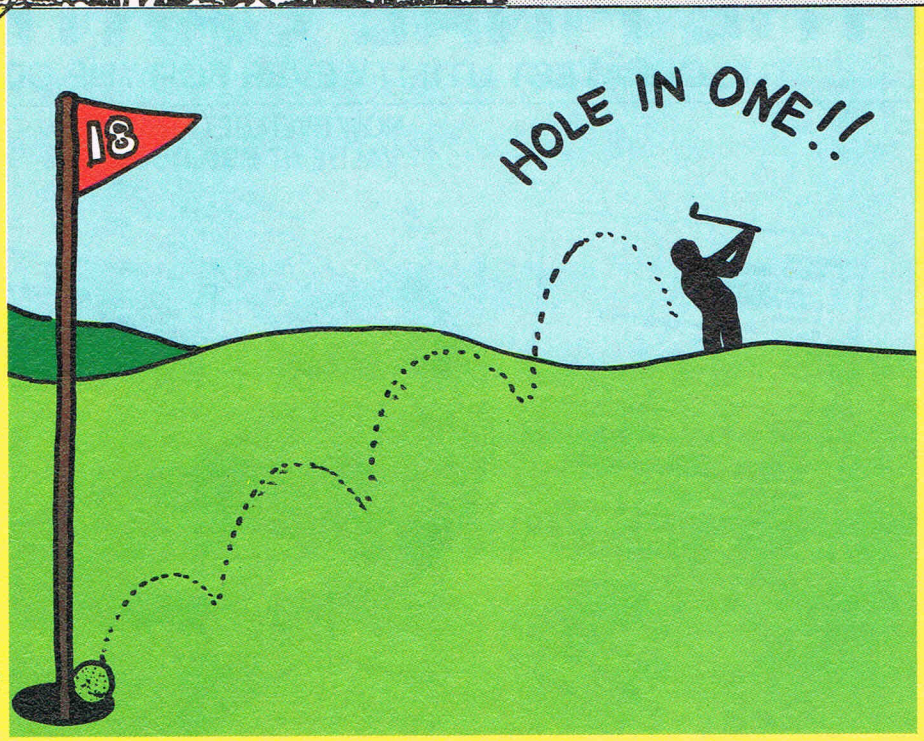


World Class Leaderboard

World Class Leaderboard is the next update in the Leaderboard series. As you probably know, Leaderboard is a top high quality golf simulation. Where as the original Leaderboard was played on groups of small islands in a lake, World Class Leaderboard is played on more conventional golf courses, with rough, trees, bunkers and ponds.

One major difference in World Class Leaderboard is the course designer. Although it has four in-built courses, the designer allows you to make your own courses, thus not getting bored with the same ones (a major criticism of Executive Edition).

As with its predecessors, World Class is viewed from behind the golfer in 3D. The screen starts off bare, and the trees, bunkers etc. are drawn in amazingly quickly. The golfer is controlled by selecting the club, aiming the shot with a cursor, then holding down the fire button for the right length of time for the power of the shot. A second press of the button decides the amount of hook or slice which will make the ball vere left or right. Good timing is the key to success here. If the ball hits a tree, it bounces off and falls to the ground very realistically. Playing a shot into the water will result in the same shot being played again, with one being added to your score.

World Class Leaderboard isn't that different to its forerunners, and features the same excellent animation, but with improved, more interesting graphics.

Up to four players can compete together, which makes it a lot more enjoyable amongst a few friends. There is also a choice of how many holes you play — 18, 36, 54 or 72, although its appeal maybe will tarnish a little after the 70th hole. Perhaps a nine hole option would have been more useful. There are three skill levels — kids, amateur, and professional. 'Kids' has no hook and slice or wind to worry about. 'Amateur' has hook and slice but no wind, and 'professional' has the lot.

Each hole has a 'par', the number of shots allowed for each hole. Scoring is in the form of a positive or negative number, or 'E' if you're on par eg. if you take five shots on a par four hole, your score will be +1. Scores are carried from hole to hole and adjusted accordingly.

There are very few sound effects in the game, although what there is, are very realistic.

World Class Leaderboard is a multi-load and could possibly be a little tiresome on cassette. World Class Leaderboard is a definite improvement on its predecessors, and comes heartily recommended if you don't have the others. If you do, however, think carefully before buying, as it is very similar. Highly recommended.

T.H.

Graphics: ★★★★
Sound: ★★
Playability: ★★★★
Price: £14.95 (disk)
CCI Rating: MEGA

C64

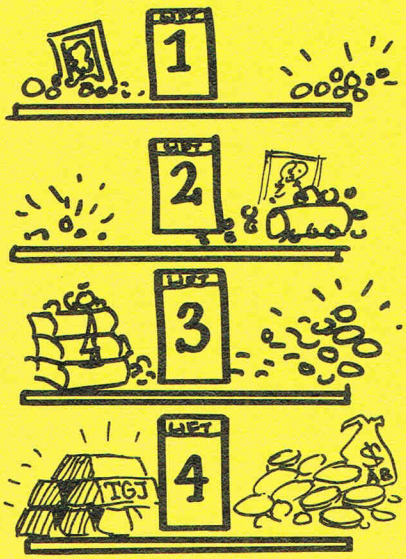
MEGA

INTO THE EAGLES NEST

Into The Eagles Nest — Pandora

Pandora have been very quiet since their formation as a label, and like so many other good ideas from leading houses — Reaktor (Ariolasoft), Monolith (Beyond) and FTL (Gargoyle) — they have struggled to maintain the flow of games necessary to gain true recognition (those houses wishing to see how to successfully establish a new brand need look no further than Telecom's Rainbird though they have their troubles too). Eagle's Nest, however, is a slick product and by rights should make Pandora a name to be reckoned with.

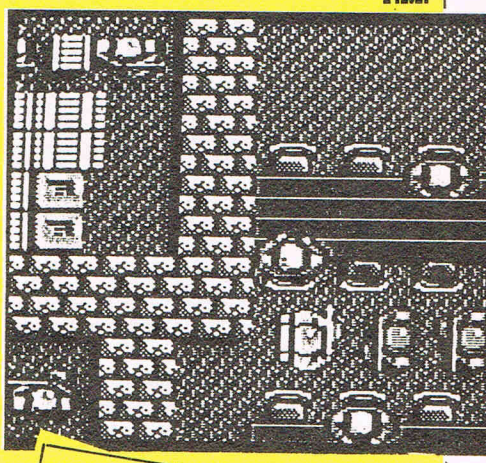
The plot is pretty standard WW2 — break into the Nazi stronghold, rescue your colleagues (3 in this case) and blow it to bits. The execution, however, is better than most combining the perspective and gameplay of Gauntlet with the simplicity of Green Beret. You view the action from above with your hero looking a bit like one of those miniature table-top robots; shapeless, noisy and slow. When he fires his gun the sprite makes a strange unrealistic stabbing movement and after a shot or two the enemy falls. Your opponents don't seem to fire back, but if they touch you your 'HIT' counter goes up by one. 50 hits and that's the end of you. There is also a counter for ammunition (which can be replenished at 5 units per time up to 99) and one for the number of keys you carry. Some doors can be opened with a shot, others need a key to open. You pick up objects by passing over them and they are used automatically where appropriate. Access to other floors is by a lift which must be found on each of the 4 levels and opened with a lift pass. Nazi treasures are also dotted around and should be collected for points.



My initial impressions of Eagle's Nest were mixed. The animation, while cute, is jerky, the 4 missions are progressively harder but the layout of the stronghold is identical, and the sound was unconvincing at best. In play, however, it is fiendishly addictive and there is a real feeling of heroic struggle as the Nazis pour towards you from all directions.

In pinching the frenzied activity of Gauntlet, changing the sprites and improving the 4-way scrolling, Pandora have found a much more exciting formula. For my money shooting Nazis is a lot more worthwhile than any poorly defined arcade nasty, and there is a text window that keeps you informed of major events in the game as you go. While seeing all the ways Eagle's Nest could have been a better game, I still found myself playing it into the small hours in the hope of finding my colleagues or discovering the hidden detonators necessary to blow the place to bits. Definitely one for addicts!

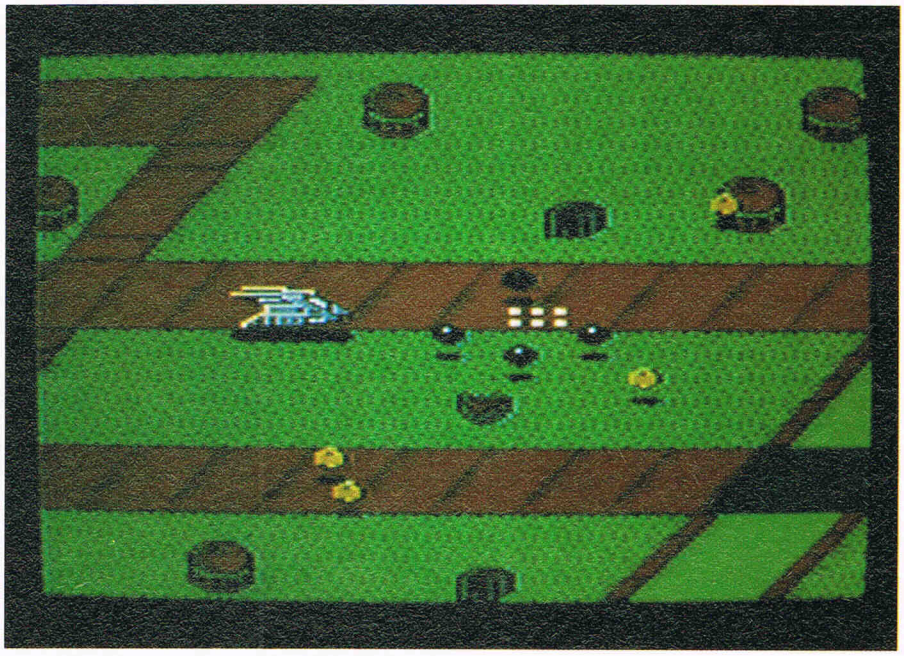
T.M.



Price: £8.95 (c) £12.95 (d)
Sound: ★★
Graphics: ★★★
Playability: ★★★★★
CCI Rating: Mega

C64

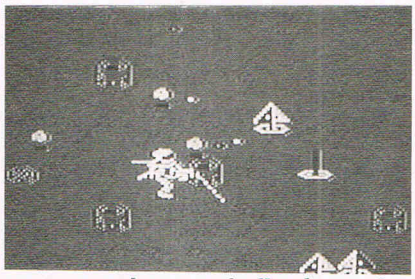
MEGA



Mag Max — Imagine

Mag Max is the next game to be released by Imagine, who made their name by making conversions. This isn't the easiest job in the world and many of their games don't live up to expectations, but here, they have made a conversion to be proud of.

You are Mag Max, a prototype robot, who has been hidden by a group of scientists, just before the earth was finally destroyed. Now, as the earth lies in rubble and ruins, you 'awaken' and start to attack the invaders. You must take control of Max, and guide him across the surface, and underground, the earth collecting components to make yourself strong enough to get your own back on the aliens. These



components come in the form of legs, head and a lance, and though you don't need them to beat the usual cannon-fodder. There are large metallic dragons at the end of each level which need a good blasting to pass.

The game is played at quite a slow pace but as you progress over the landscape, things hot up; if you leave just one thing firing at you, as you go past it is likely to get in a sneaky shot at you — if it doesn't kill you it will take your head or legs off though!

Underground you have none of these worries as the battle is carried out against, squids, birds and even invisible minions. These come at you in single waves and their graphics are really incredibly good. There are drawn in metallic style and are animated excellently. The land graphics are drawn in a more cartoony style but are no less impressive for that.

This is a good blast, though it's nothing special in concept. It is very well programmed, imitating its arcade cousin beautifully. A distinctive oriental soundtrack goes with the title screen, but there are only sound fx in the game. High recommended.

C.K.

Price: £8.95
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Mega

Konami Coin-op Hits C16

Konami Coin-op Hits — what can I say? An excellent compilation on the '64 and now it's on the C16.

Ping Pong what a brilliant game this is. Character graphics, white noise and a total lack of playability. This is one of the biggest no-no's out and I don't know how Imaging could have released it.

Green Beret — pre basic. This game could have been good, because if they really wanted to get a good game they could have given it to some other place to program for them. Anco managed a good version in Bridgehead didn't they? I'm sure they did. So couldn't Imagine have got the idea from that and made at least a playable version? No they couldn't. The pits.

Hyper-Sports — naff. This game is an improvement, but it is still terrible. The swimming is made up of bad graphics and bad sound. Speed is always just about the same no matter how fast you move the joystick, and you have four other competitors who are very, very slow. You have to wait for them to finish before going on to swimming, and this is where I almost cracked up, it was so mind knumbingly boring. Street shooting was bad as well — proving to be so difficult that I only got the required score once. I proceeded onto the Long Horse and the computer crashed. Arrgh! All that for nothing! Oh no! Noooooo!

Yie Ar Kung Fu. At last sanity. A good game. Whoopee! not as good as Fist or Way of the Tiger, but still good. I gave it a crisp, but on this tape, it's awesome compared to the rest of this trash. And Imagine have the cheek to release this for 10 pounds.

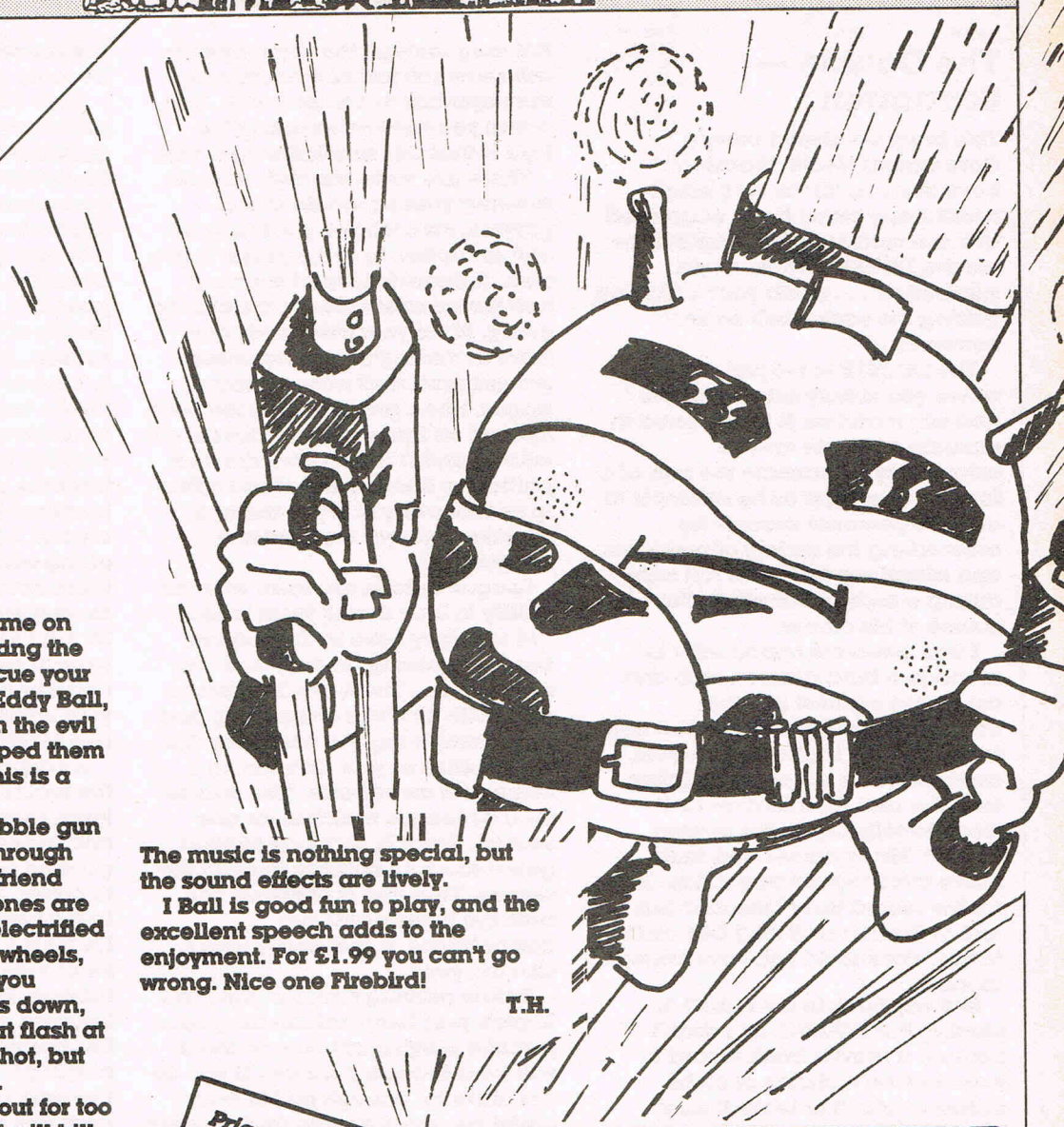
Rating: Naff

C.K.

C64

MEGA

I, Ball



I, Ball is the wacky new game on Firebird's Silver range. Taking the part of I Ball, you must rescue your spherical pals Lover Ball, Eddy Ball, Glow Ball and No Ball from the evil Terry Ball who has kidnapped them (did I hear someone say this is a load of balls?)

Armed with only your bubble gun you must make your way through sixteen zones, rescuing a friend every fourth zone. These zones are full of obstacles — walls, electrified walls, doughnuts, roulette wheels, and microwave ovens. As you progress, the screen scrolls down, with nasties appearing that flash at first, allowing them to be shot, but without them harming you.

However, if you hang about for too long, they sto flashing and will kill you on contact.

Every so often, a power disk will appear. Be careful not to shoot these, as when collected, they give you a weapon such as horizontal laser, smart missile, or the ultimate weapon — rainbow ripple laser. The power disk also give such things as turbo boost, electro-shield, and extra points.

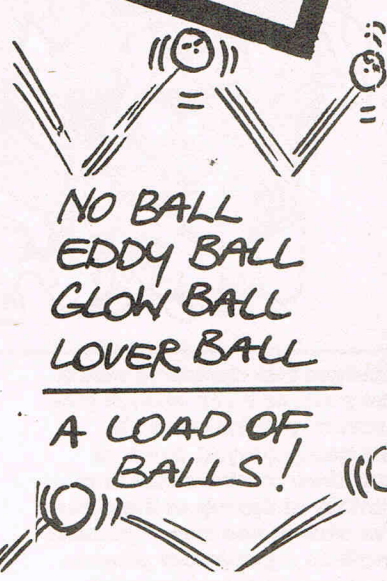
The best thing about I Ball is the sampled speech. on loading, you're greeted with "I Ball! I-I-I-I I Ball!" If you touch a nasty in the game, a cheeky voice shouts "Oh no!" At the end of the game the same voice declares "Game Over!" The expression of the speech is just right, and makes the game much more fun to play. The game over speech is really good, and somehow makes you feel satisfied.

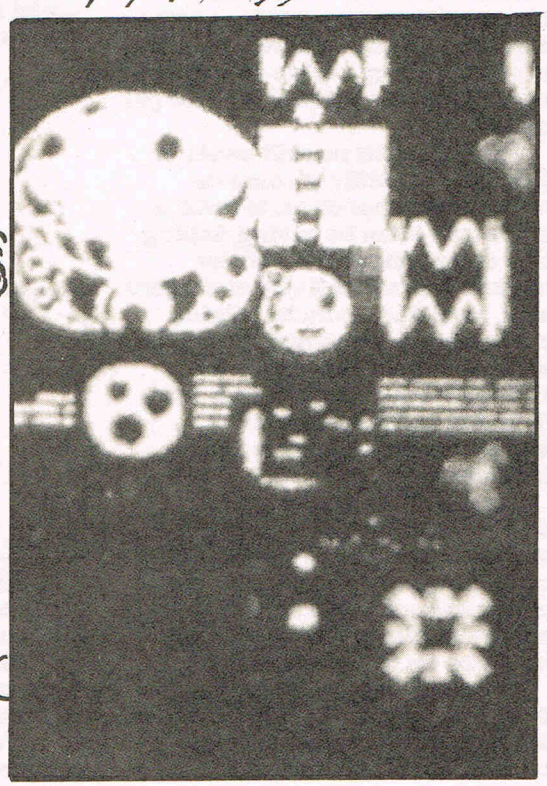
The graphics in the game aren't particularly imaginative or pretty, but the scrolling is easy on the eyes. The music is nothing special, but the sound effects are lively.

I Ball is good fun to play, and the excellent speech adds to the enjoyment. For £1.99 you can't go wrong. Nice one Firebird!

T.H.

Price: £1.99
Graphics: ★★★
Sound: ★★★★★
Playability: ★★★★
Rating: Mega





The Double — Scanatron

This program should carry a Government Health Warning!! I have been up 'til the very small hours many many times engrossed with the challenge to complete the elusive DOUBLE. I haven't yet succeeded . . . could you? I did find getting the sack much easier however!!

The DOUBLE is not just a game where you simply select players and win matches. It is designed to emulate accurate and as extensively as possible the role of a football manager as he attempts to achieve personal success by overcoming the variety of problems and situations that arise not only during a season but within the course of his career.

I was given the opportunity to manage a third division club and competed against 65 other computer managed clubs. The data for each club, individual players, average gates etc, were all taken from the real life situation as it stood leading up to the season 1985/6. Many names and facts make this program true to life. Just for the record Gary Lineaker was still at Everton so it may be possible to buy him should you have enough money!

Anyway back to the reality of playing the DOUBLE. As I didn't possess a proven track record I wasn't given a choice of clubs. Rather a take it or leave it offer. However, if you are able to convince other clubs that you have something to offer you may decide your future would be better elsewhere if you get an offer.

This game has no skill levels. It judges your ability to compete against the other clubs, to build a successful team by buying, selling and competing in the transfer market. This will test any manager's skill, handling financial affairs, coping with injuries and attempting to improve your squad with the 1,050 players available each with their own individual abilities, transfer values and wage requirements.

You are given the choice to employ a physiotherapist and 2 scouts. You can send your scouts away to report on any team or any player to enable you to assess a particular player you might think would be an asset to the squad.

The program is menu driven with three sub-menus. The ability to save the program is essential as will become clear in a moment.

Running through the menu options will show you just how much a real manager has to contend with. This shows you just how exacting the task is that this simulation sets you.

There are your own club records showing your squad details of players, their wages, goals scored and an option to sell a player if you wish. A financial report showing how the business side of the club is doing. All of your overheads are there including travel. expenses, ground rent, staff wages, players wages, fines, ground improvements, interest on loans etc etc. Players get injured and it is your decisions on particular treatment that will either speed recovery or if you make a mistake a player may suffer a relapse.

League details are there with the abiliity to look at any team to see just who they have in their squad. League tables up to date and the next fixtures. There are 3 divisions each with 22 clubs competing. Just as the real thing you must play the other teams in your division on a home and away basis. This makes for a 42 league matches for one season. The F.A. Cup competition gets underway halfway through the season. Your aim is of course win both the league and cup competitions. A real heavy task I can tell you!!

Before playing a match you have to pick your team, inform the police if you're playing at home so there will be adequate policing. If you do not allow for enough police there could be crowd trouble and a heavy fine from the F.A.

A manager can decide to watch his team play, or if you choose you can watch any of the other 32 matches being played. Each of these matches carries a running commentary at the top of the screen so you're able to see any weakness or strength in a particular player. Watching a match can be a bit tedious but it is an essential part of the proceedings if you want to become a successful manager.

Here I found my two main criticisms, the first is the terrible graphics though this is due to the limitations of available memory. Scanatron, I hope , should seriously think about writing a version for the 128 and improve upon this situation. The animation is a bit of a joke! The other criticism is the length of time it takes to complete a season. As I said earlier the ability to save to disk or tape is essential. This is because the game is so realistic and the task so exacting that this is the end result. Time however is not on your side. The length of time to watch a match is around 20 minutes so you see that along with all the other preparatory tasks not to mention the transfer market each game can take at least 30 minutes. A full season will last several sessions at your computer and annoy every other member of your household and make you feel like kicking the dog!!

A couple of excellent points are the facilities for printing out the team sheets or the league tables and indeed most anything that goes on screen can be printed out to paper. The other is that you can buy a booklet for £1 called the FACTFILE, into which you can record all your triumphs and failures, this is a nice touch because when you buy a copy of this program you are going to be playing it for many many months. The only other way to experience what this game gives you is to become a football manager for real!!

If you like a challenge then this is for you! The DOUBLE took two years of work to write and I must say that I can see that it shows hard work in its rewarding complexity and excitement.

Price: £10.95

Twin Tornado — by Doctor Soft C64

Over the years two player games have been restricted to the Sports simulations or by each player being pitted against the computer individually. However, this the latest in a long line of flight simulations now provides the player with a 'real' combat situation. The simulation uses the Tornado aircraft as its basis and the two player aspect is achieved by using two machines linked by a cable in the serial port. This was first brought out for BBC equipment and has now been converted to Commodore equipment. Each machine runs the same program with the enemy plane movements being supplied by the opposite computer. Apart from the Two-player two-machine option, there is the now standard training and single combat modes, using the computer as opponent.

The cockpit view uses vector graphics for ground and opponent movement which is very smooth. The instrument panel is as usual displayed in the bottom third of the screen and again is very smooth in operation. The actual flight simulation is initially kind to the beginner and it is quite easy to takeoff, however, landing the aircraft is a very different story. This can be learned as in the training mode the function keys can be used to help in the approach and landing. Once these aspects have been mastered the other controls of the aircraft can be addressed. These are quite extensive and include such things as the sweep of the wings and the reheat frequency resonance settings. Two joysticks can be used, the primary in port two for the actual control of the aircraft and the secondary in port one for throttle control. Although the throttle can also be set to automatic except on landing.

It should be noted that the cable used to connect the two machines is non-standard and the two player mode will not work with the standard Computer-Printer/Disk Drive cable. The cable can be purchased from Doctor Soft for under ten pounds. However, the package contains a voucher for three pounds against the purchase of the cable. Two of these can be used to reduce the price to under four pounds. The assumption in this is that two people could purchase the software but only one cable is needed between them.

Also a word of warning the program will not work in the two player mode on a machine that includes an integral disc drive such as the SX64 or 128D.

As far as aircraft simulations go this is up with any of the others available. However, it is worth adding to your collection for its two player mode alone and therefore deserves its Mega status. My only addition to the game would be to include a different type of aircraft as part of the package, to be flown on the other machine.

L.K.

Stuck in Strike Force Harrier? C64

Strike Force Harrier seems to be giving some readers difficult problems. With the co-operation of Mirrorsoft we have some tips to help you extend your flying hours and meet that "ultimate challenge".

Landing Sites

To survive for any length of time, you must look after your landing sites. The rules are simple, but it is easy to forget them when you've got three MiGs on your tail.

Firstly, if a tank moves on to a landing site, the site is destroyed. You will hear an explosion and a new landing site will become available at HOME BASE (where a landing site starts off). Secondly, if a tank moves on to HOME BASE, the game ends. The screen goes red and will stay that way until you act dead (take your fingers off the keyboard). So if you hear explosions or get the red screen when everything seems under control, you've probably forgotten your landing site. You're particularly vulnerable when a landing site is destroyed and you get a new one at HOME BASE, because tanks are targeted towards landing sites.

Tip 1: As soon as you're airborne, destroy the four tanks to the east of landing site a.

Tip 2: Move your landing site every 15 minutes or so.

Hills

If you get red screen when you're completely under control and your landing sites are safe, you have probably met a mountain whilst performing a steep dive or turn. You should be able to avoid this if you keep an eye on the collision detection equipment.

Tip 3: Don't perform steep dives or turns near mountains until you know your limitations as a pilot!

Avoiding Missiles

Timing the release of chaff and flares is crucial — they will not have the required effect if they are released too early. If your decoy has been unsuccessful, the missile alert will continue, but a successful decoy will be rewarded by silence and a report of your remaining decoys. If the attacking missile is in front of you, evasive action will be more effective than decoys.

Tip 4: If a missile approaches from behind, don't release the decoy until it overprints the plane on the combat radar.

Tip 5: When you see a missile approaching, keep changing direction until the alert stops and the missile is no longer on the combat radar screen. If all else fails, take cover in the clouds!

Calling up a Landing Site

If you call your ground forces up to a new landing site and they don't arrive, it may be that they cannot prepare the ground around you, but they will be nearby.

Tip 6: If you don't get the message 'over gs' when you call up a landing site, take off again vertically. Pinpoint the landing site again using the HOMER and land. Remember that you must take off vertically as the ground is unprepared.

Air Combat

Enemy planes often hunt in packs of three — but you only have two Sidewinders. These missiles are deadly, so don't waste them on easy targets.

Tip 7: Don't engage an enemy squadron unless you have a full complement of Sidewinders. Make your first kill using cannon.

Mirrorsoft has set up a Harrier Hotline. So if you have any further problems, call the Harrier Hotline on 01-377 4900.

COIN OP COUNTDOWN

Andrew Cash, we believe, has no home. He lives in bright places, with noisy games machines that blare. His pockets are filled with the coins needed to feed these hungry computerised money swallowers. He has been known to stand mesmerised for 36 hours non-stop playing a single challenge. We tore him away and interrogated him on the latest buzz in the coin-op world. Where possible we give the company that has bought the home computer conversion rights.

Coin-ops seem to be the flavour of the year for software houses so far. Companies who haven't had a hit in months are snapping up as many as they can carry in a desperate bid to turn the tide, while the old stalwarts like US Gold and elite are more sedately skimming off the cream and keeping relatively quiet about it. So if you want to know which of the big games are really worth buying when they finally appear on the 64, and you don't happen to live in Blackpool or London, check out this page for a comprehensive and unashamedly subjective view of what's what in the arcades at the moment.

FLYING SHARK: Not to be confused with 'Slap Fight', 'Tokyo', 'Mission XXX' or 'Tiger Hell' this newy from Taito is apparently doing great business all round the country. A vertical-scrolling bomb-and-blast-em-up that steals elements from all the others yet still comes up fresh and playing beautifully. Your single fighter-plane moves up the screen blasting away with panache of a '1942' veteran, and picking up those precious and spectacular smart-bombs that wipe out the whole screen at once. The formations of planes that swoop down from all angles get increasingly hard to avoid, as do the tanks that crawl across the terrain beneath you. Shooting some formations give you extra firepower — but be warned, you'll need it! Expect to see Aircraft-carriers, gun-boats, armoured vans, trains and massive bombers in this excellent dose of mayhem. Forget originality, check this out! (8/10) Conversion — Firebird.

ALIEN SYNDROME: Believe, it if there's one game out there that will be as influential as a 'Nemesis' or a 'Gauntlet' it's this. Sega borrow a few routines from 'Gauntlet' to produce a fun shoot-em-up that is simply unbeatable. The plot is basically 'Alien' with a set number of comrades to be rescued on each level before their 'impregnation' is complete. Sega have discovered a new graphic style that has to be seen to be believed; big, dayglo sprites that explode when hit in a quite repulsive manner and have the pulpy appearance of real slime! The mother aliens awaiting at the end of each of the 6 levels have such features as exploding heads, mutating limbs, and double-jaws that shoot out and bite your man in half. Sounds too tasteless? No at all, this is spoof sci-fi at its best and once again puts Sega in a class of its own. The action is viewed in 'Gauntlet' perspective, but the emphasis is on blasting rather than strategy and the range of firepower that you can pick up from hidden wall-caches is formidable. Find one of these machines and play it to death!!! (9/10)

That's all for this month. See you in 3D.

GRAYZOR: A little like 'Soldier of Light' but a well-defined game that takes your Rambo-like mercenary horizontally across a swamp-land shooting foes and collecting weapons. If you like 'Green Beret' you'll find this similar but 10 times better. (6/10)

SUPER HANG ON: Yawn . . . New landscapes, slightly different graphics on crashes and skids but basically the same game. Sega can do better and did with 'Out-Run'. (5/10) Conversion — Activision.

SIDE-ARMS: OK, so it's 'Nemesis' with frills, but what frills! Plays like an E-type 'Jet-Pac' with your man picking up some frightening weapons like something out of 'Centurions'. There's real excitement in the speed of the gameplay and the definition of the graphics, and the switch between vertical and horizontal scrolls keeps you on your toes. In 2-player mode you can pick up an icon that allows both players to join together to form a single killing machine, but it won't be long before you're back on your own again. I was disappointed in the 'mother' ships that await you at the end of levels, but it's incredible how quickly Capcom have adopted and improved on Konami's house style. This is a class shoot-em-up that sadly has been underated by just about everyone. (9/10) Conversion — Softek.

EAGLES

EAGLES is the new electrifying fighter game from Hewson. If you've got killer instinct, this is the game for you. Eagles will stretch every nerve in a fast and furious shoot-em-up set where you can blast your opponent out of the sky in an exciting dog fight sequence – Get your wings . . . . . with Hewson.

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As part of our continuing development of innovative software we are always happy to evaluate software sent to us with a view to publication.

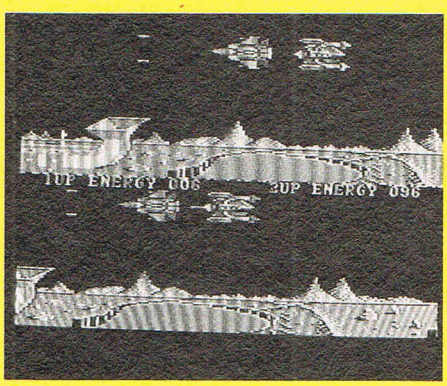
REVIEW

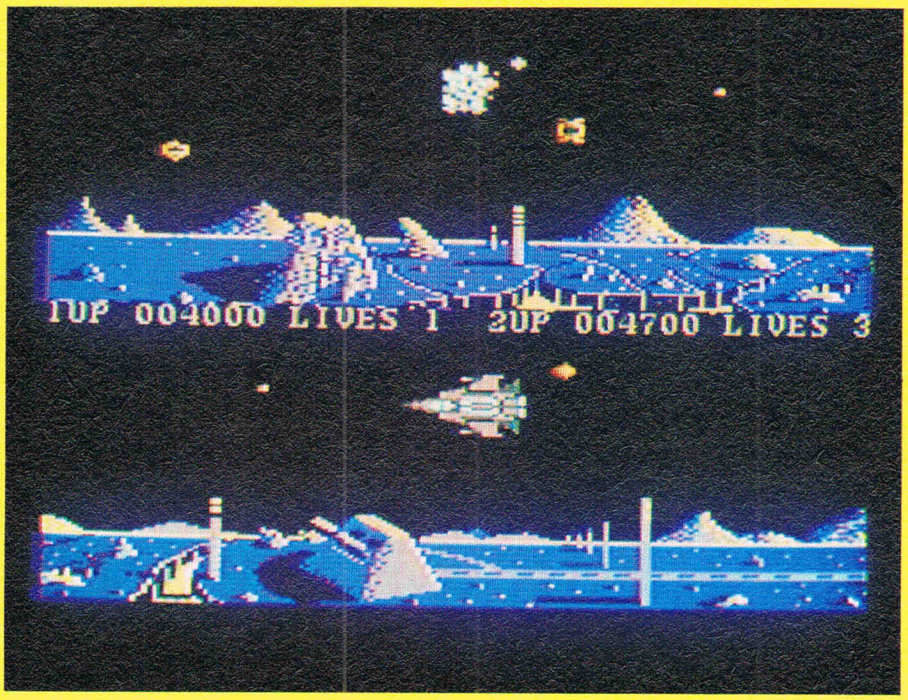
Eagles
C64

CRISP

Eagles from Hewson is yet another addition to the already vast selection of scrolling shoot 'em ups. Set in the year 2846 during the three hundred years war, you are called upon to save the world from attacking aliens (again!) With a fellow eagle pilot, you must fight of wave after wave of aliens, with a confrontation with a Zeta fighter after each wave. As well as blasting the aliens, there are message droids to be picked up and dropped into a pipe leading to your base. Collecting five of these gives you a devastator device which works like a smart bomb, killing everything on the screen.

Eagles is displayed in a horizontally split screen showing an independent view for each player. Both planes fly over the same area, and can choose to either work as a team, or against one another with a dogfight after each wave.





The planet surface is very well drawn, with some similarities to Dropzone, and scrolls very nicely at four different speeds.

Eagles is very well presented, with a clever high resolution multi-colour title screen, and all the graphics moving smoothly. The title screen music is quite good, but not something you would want to listen to for long. Unfortunately, the sound in the game isn't too hot, with just a few basic effects.

The playing area is quite small, which gives a slightly claustrophobic feel. I would have preferred a full screen for each player, although this would rule out the simulataneous two players option.

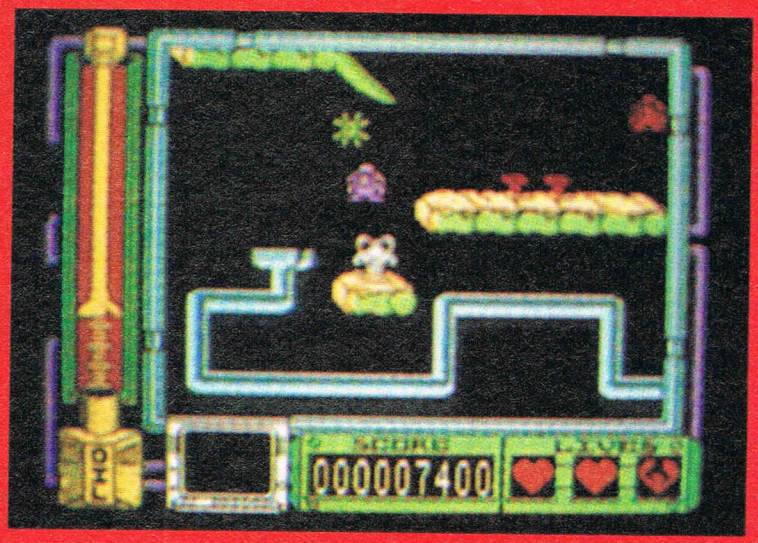
Eagles has obviously been very cleverly programmed. It has that dis quality that Hewson creates. But in gameplay it boils down to a simple defender variant which perhaps lacks the extra something to keep you playing over and over again. Nevertheless a very likeable game.

T.H.

Price: £8.95 (c) £12.95 (d)
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

C64

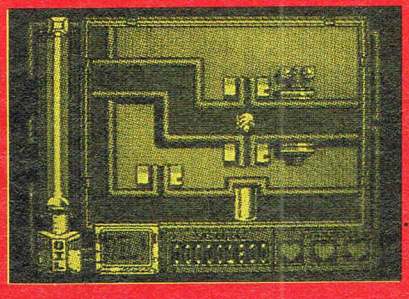
MEGA



Thing Bounces Back

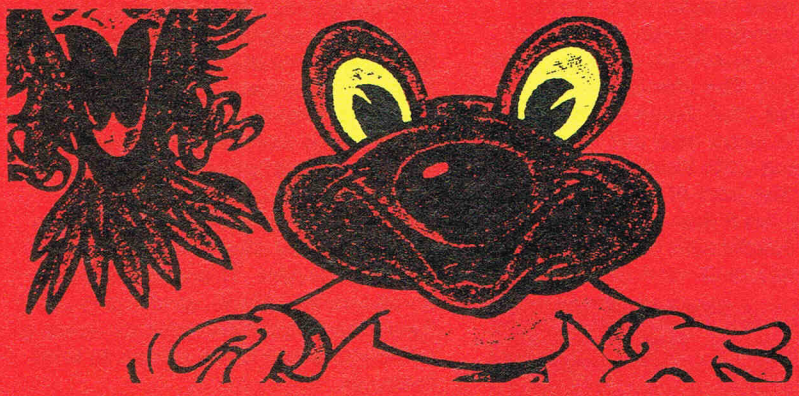
Yes! That cute little green bouncy Thing is back! Just when he thought it was safe to go back into the toy cupboard, after having dealt with the evil toy goblin who was planning to take over the world, he realised the factory computer was still making these killer toys. Once again, Thing must venture into the factory, and put a stop to it for ever.

Thing Bounces Back is a platform game with many original touches, like the suction pipes that squeeze you along, and shoot you out the other end. It's not just timing jumps and dodging sprites. 'Thing II' is played in a number of rooms, each



made of a few screens of srolling action. Thing is a strange creature, consisting of a head with big eyes and a red nose, arms, and a spring with two feet at the bottom. His spring can be used to good effect enabling high jumps, and cushioning high falls. Thing can summersault left and right, jump straight up, and hop around (his way of walking).

Since Thing's last visit, the factory has undergone some changes. The



As well as the conveyor belts, platforms, and slides from the original Thing of a Spring, there are mystery bonus platforms, lasers, doors, and platforms that can be adjusted in height by bouncing on or under them.

Thing Bounces Back is quite similar to its predecessor, graphically and in game play, although thankfully, a bit easier. New nasties guard the factory now. Gremlins, froglets, blue meanies, and flying eggs that hatch any one of those or other nasties.

The title screen music is like a remix of the original Thing music with lots of added bounce. However, the sound effects in the game are fairly standard.

Some of the sprites are very good, like the goblins and Thing. Everything moves about very smoothly, and the scrolling is very fast at times. I liked the way Thing isn't totally defenceless against the nasties, being able to squash them by jumping on them.

Although platform games are getting on a bit these days, Thing Bounces Back is really good fun. It will be adored by fans of Thing on a room layouts are different, with new security devices, and a maze of pipes connecting the rooms. Each room in the factory contains objects needed to re-program the computer. These are a disk, a program listing, a cassette, and a ROM chip.

Spring and by plenty who are going to meet him — and love The Thing for the first time. A terrific game and worth every penny!

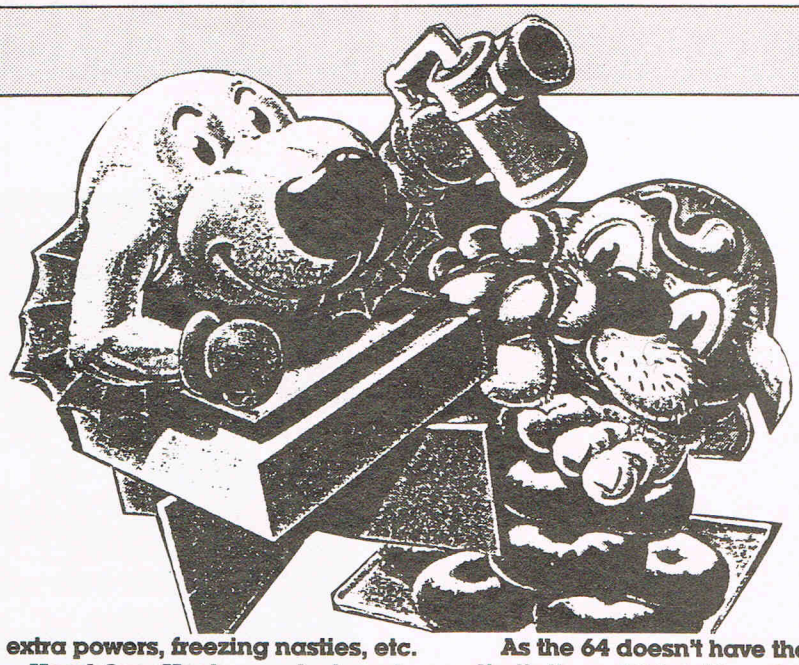
T.H.

Graphics: ★★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: MEGA
Price: £9.95

Head Over Heels —Ocean

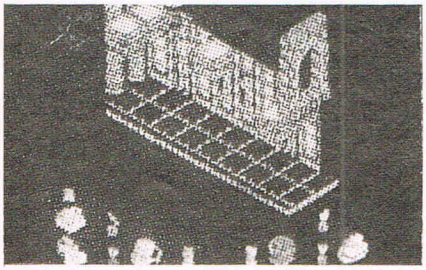
C64

CRISP



While shoot 'em ups are still easily the most common computer games, more and more arcade adventures are being released. And it's becoming very difficult to come up with something different. Ocean have tried by creating two very odd creatures indeed. Head Over Heels — Head is descended from a breed of flying reptile, and still has two small wings that allow him to jump twice his own height, and guide himself through the air. Heels has no arms, but powerful legs and can run very fast. The strangest thing about Head and Heels is that they can form a team and act as one, if Head jumps onto Heels' back!

Taking the part of Head and Heels you must first escape the castle of Blacktooth where you have been imprisoned, and then either



escape back to freedom or teleport to one of the planets enslaved by the evil Blacktooth empire. These planets must be liberated by finding the crowns lost in the Blacktooth invasion, which will then start a revolution of the enslaved people.

At the start of the game, you control Head, and must find a way to team up with Heels and escape. At the press of a button, you may swap control to Heels who starts in a nearby room on the opposite side of a wall. Around the castle you will find such things as springs, switches, conveyor belts, and teleports which can be used to help explore the locations. As well as these, there are some more unusual items, for example, cuddly rabbits, reincarnation fish (who love to be eaten), hush puppies (who never wake up), and a hooter that shoots ring doughnuts! All of these can help you in your quest by giving you extra powers, freezing nasties, etc.

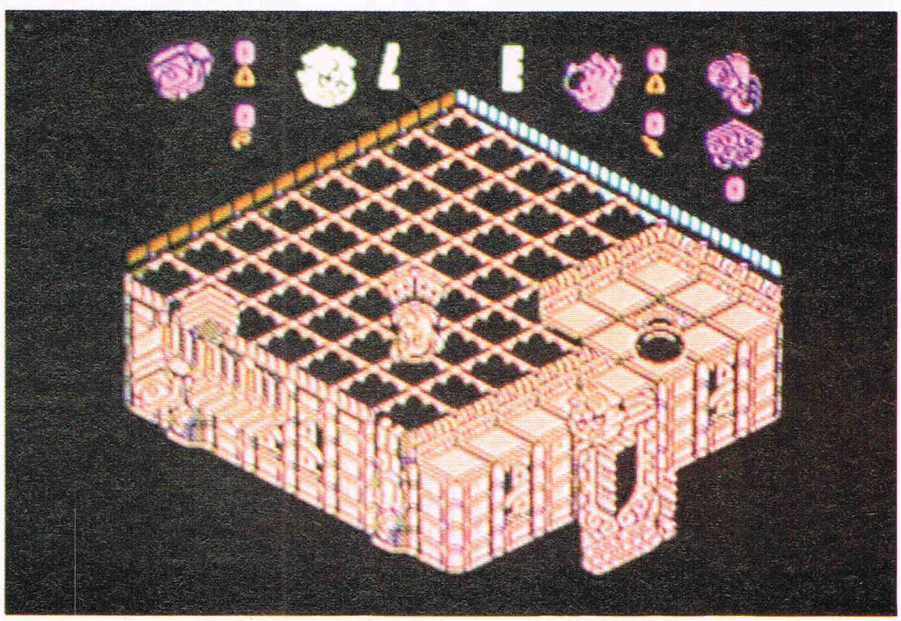
Head Over Heels was designed by Jon Ritman, author of the best selling Batman which never made it to the 64 and features the same cute graphics, 3D viewpoint, and similar gameplay. The bulk of the gameplay consists of timing jumps from one platform to another, and dodging robots — all good fun, but I can't help thinking I've seen it all before. The graphics, apart from the main play area being only two colours, are very good, with nicely drawn sprites and interesting detailed rooms. There are a few good sound effects, and some short tunes that could become annoying, although there is an option to turn them off.

Head Over Heels is certainly a well programmed game but has obviously been converted from a Speccy and to fit in its graphic limitations has been drawn mainly in its colours.

As the 64 doesn't have these limitations, I think it's a shame there isn't more colour as it would have made the game far more attractive. The Commodore 64's four colour mode would have allowed this with a slight loss in resolution, and I'm sure the addition of more colour would compensate for this. I think that would have been worth it. If you haven't got a game like this yet, then take a look, you could find it well worthwhile.

T.H.

Price: £8.95 (c)
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp



TOP TWENTY

Chart Chatter

Elite's 6 Pak (no, it's not beer!) stays Number 1 for the second month running. Enduro Racer enters at number 2 and Palace's controversial Barbarian hits the number 3 spot — with the support of Miss Marie Whitehouse's ample charms.

C64

	GAME TITLE	COMPANY		Price(£)	Rating
1	Elite 6 Pack	Elite	↑	9.95	Mega
2	Enduro Racer	Actavision	★	9.99	T.B.A.
3	Barbarian	Palace	★	9.99	Crisp
4	Auf Wiedersehen Monty	Gremlin	↑	9.99	Mega
5	Mag Max	Ocean	★	8.95	Mega
6	Big Four	Durell	★	9.95	T.B.A.
7	Milk Race	Mastertronic	★	2.99	Dodgy
8	Gunship	Microprose	↓	14.95	Mega
9	Eagles	Hewson	★	8.95	Crisp
10	Head Over Heels	Ocean	★	8.95	Crisp

Bubbling under and likely to hit the surface shortly:

★ US Gold's Metrocross
★ Palace's Stifflip and Co.

C16

Woe to the poor C16's. Everybody says the market's dying, though no doubt you will tell us differently. It's becoming difficult even to form a C16 chart and so we'll come down only to the top five.

1	Paper Boy	Elite	★	7.95	T.B.A.
2	Battle	Mastertronic	↑	1.99	T.B.A.
3	Footballer of the Year	Gremlin	★	6.95	Mega
4	Storm	Mastertronic	↑	1.99	Iffy
5	Way of the Tiger	Gremlin	★	6.95	Mega

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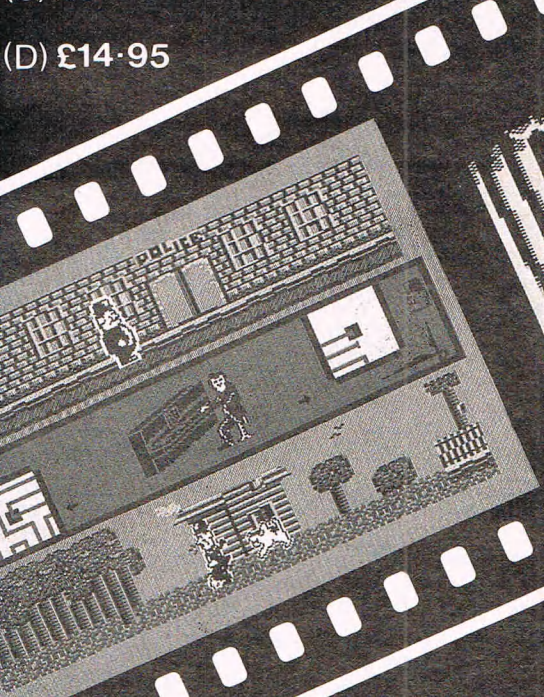

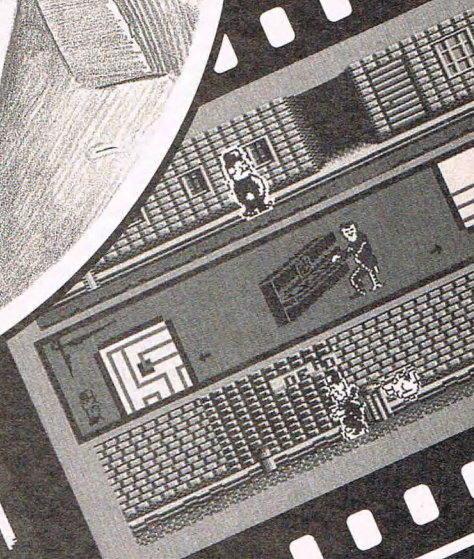

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Compilations

Compilations are becoming increasingly popular these days, perhaps the quality of games they include or simply because they often provide such excellent value. Prices of games are tending to fall — due, of course, mostly to the budget labels and the competition they are giving the full price games companies. Still very often if you can buy for about £10, 4 or 5 full price games then you are getting them at more or less the same price as the budget level. And most people simply don't get the chance to play *every* game just when it comes out. So plenty will welcome the opportunity to spend less but get more 'bangs per buck'.

Today's compilations, on the whole, are made up of at least one hit game and a handful of older or not so good games. Some people do complain that no sooner than they have bought a game it appears on a compilation — which maybe an error on the original company's part.

There is however usually a gap of at least six months before this happens, so why begrudge others who either couldn't afford it or decided against buying the first time round, the chance to get it with a few more games for the same price?

To help you decide what to go for, we've put together the following guide of the latest compilations for your guidance.

5 Star Games (volume 1)

5 Star Games includes Spindizzy, Equinox, Zoids, Batalyx, and Scarabaeus.

First off, we have *Spindizzy*. This takes the Marble Madness idea, and puts it into a 'flip screen' format as opposed to a scrolling landscape. You are Gerald, who must explore every location of this new world and make a map to take back to base where you will be awarded promotion. On your way, you will have to negotiate ramps, water, and ice, as well as avoiding the void below. The graphics are colourful and Gerald moves realistically at a fair speed.

The lack of any music or frequent sound effects does spoil the game a little as it is played virtually in silence. But CCI classed it as Awesome when it came out and it is well worth that rating. Spindizzy is in my mind, the best game on the compilation.

Equinox is an arcade adventure cum shoot 'em up set in a colonised asteroid. Radio active canisters lie exposed in the mines, and it's your job to dispose of them. You control a spherical disposal droid armed with a laser that comes in very handy for zapping those little energy-sapping aliens. Collecting and using objects allows you to gain access to canisters and other parts of the mine.

Equinox is quite similar to the Starquake/Nodes of Yesod type of game with agreeable graphics and sound.

Batalyx is a typial Jeff Minter game, incorporating six sub-games. The games feature the usual characters, Cippy, Rory, and, of course, the mutant camels. The games are: Hallucin-Bomblets, Attack of the Mutant Camels, The Activision of Iridis Base, Cippy on the Run, Syncro 2, and Psychedelia. All the visual and sound effects are here, together with lots of blasting — not one of my favourites, but will not doubt appeal to Minter fans.

Zoids is an icon driven adventure game, featuring the toys of the same name. Your mission was originally to land in the Red Zoid's city, and with Zoidzilla, find and destroy Redhorn the Terrible. However, whilst landing, an unidentified object collided with your ship. As you bailed out, you saw your ship explode, scattering Zoidzilla about the landscape. Now you must find the eight parts of Zoidzilla before seeing to Redhorn the Terrible.

Zoids is played rather like Shadowfire — selecting icons which open up menus.

A soundtrack by Rob Hubbard plays in the background, though it's not one of his best.

Zoids is a game that would appeal to fans of the toys more than anyone else, and will be enjoyed by those who like this type of game.

Scarabaeus is a 3D maze game set in an Egyptian tomb. Your task is to enter the Pharoah's tomb. First, nine hieroglyphs must be found by catching ghosts in the maze. Together, these form a key which allows further access to the tomb.

As you progress, you must collect medicine, solve puzzles, and avoid spiders and poison.

The 3D graphics, although fairly simple, work well.

There is a choice between some quite atmospheric music, or the sound of your heart beating, and your breathing, which is done very well.

Scarabaeus should keep arcade-adventure/puzzle fans happy for quite a while.

5 Star Games (volume 1) has a balanced mixed of arcade-adventure and shoot 'em ups and is good value, although I must say I preferred volume 2. But Spindizzy makes it worth the money alone.

Rating: Crisp

5 Star Games (volume 2)

The second 5 Star Games compilation is made up of Paradroid, Dandy, Strike Force Cobra, Who Dares Wins 2, and Cauldron 2.

Paradroid was first released in 1985 by Hewson. Written by Andrew Braybrook (author of Uridium), it was one of the first games to feature the now popular 'bas-relief' metallic style graphics.

The robot crew of a galactic space freighter have malfunctioned and turned against their masters. Your task is to overcome the droids and restore peace to the freighter. Starting in your influence droid, you must destroy all the mutant droids. A more powerful droid would be useful, so you can transfer to other droids by winning a head to head battle of wits. The graphics don't vary much, and the scrolling is rather slow, but there are some good sound effects. When it was

first released, Paradroid caused quite a stir, and is still good fun to play.

The next game, Dandy, is a Gauntlet style arcade-adventure for one or two players. Unlike Gauntlet, the screen doesn't scroll but changes as the player walks out of view. Alone or with a friend, you must venture on through 15 dungeons collecting treasure as you go. Not the best game of its kind, but not the worst.

Strike Force Cobra takes the 3D arcade adventure and adds several new twists. Instead of jumping around on platforms and dodging predictable sprites, Strike Force Cobra has you controlling an SAS style team, attempting to rescue kidnapped scientists and saving the world from a nuclear holocaust. As well as being able to run and jump, each member of the team can crouch, dive through windows and ove lasers and kick down doors. You are also armed with a sub-machine gun. Strike Force Cobra is faster and more colourful than a lot of 3D arcade adventures, and more fun to play.

Who Dares Wins 2 is a Commando style game in which you must single handedly capture eight enemy outposts the aid of your machine gun and hand grenades. The scenery scrolls smoothly down the screen as you romp on into enemy territory, fighting off soldiers and jeeps while avoiding trains, planes, mortar bombs, trenches, and quicksand. The end of each area is heavily guarded by a crowd of soldiers who must be shot. Who Dares Wins 2 is a good version of Commando with a fair graphics and sound.

Finally, Cauldron 2 is a platform game in which you play a bouncy pumpkin. A wicked witch has built an enormous castle on the site of her tiny cottage in the woods. As the sole survivor of the wood, it is your job to cut a lock from the witches hair to reverse the spell, and bring peace to the wood once again. to hamper your task, the witches guards, skeletons, spiders and the like will do their best to puncture you, and save their castle. Cauldron 2 is an enjoyable game with nice graphics and sound effects.

Given that you don't have these games, I would recommend 5 Star Games (volume 2), as it includes an excellent variety of enjoyable games, and is very good value at £9.95.

Rating: Mega

Broderbund Stateside Smash Hits

This US Gold compilation contains four old Broderbund games — Spelunker, Choplifter, Raid on Bungelling Bay, and Stealth.

First up is *Spelunker*, a sort of cross between Pitfall 2 and Manic Miner. The game takes place in an old mine, full of treasure, dynamite, fire pits and bats to name but a few of the surprises. On your never-ending quest for wealth, you must negotiate the many holes and lifts in the mine as well as zapping ghosts, avoiding bats, and blasting rockfalls.

The graphics are quite basic, but there are some good sound effects. Spelunker is quite fun to play, but is spoilt somewhat by the multi-load, which takes time, as usual, when you would rather by playing.

Choplifter, the next game, has you rescuing hostages from behind enemy lines in your helicopter. The screen scrolls left and right as you shuttle back and forth from base to the buildings imprisoning the hostages. Enemy tanks and planes have instructions to shoot you on sight, and any escaped hostages. With simple graphics and sound, Choplifter is mildly addictive, but you won't find yourself coming back

to it very often.

The second helicopter game is Raid on Bungelling Bay. Based at your aircraft carrier in the waters surrounding a group of islands, you must take out six enemy factories that are making 'the ultimate war machine', as well as delaying the production of an enemy battleship that will attack and sink your carrier.

The screen scrolls in all directions as you fly around the islands. Defending the factories are anti-aircraft gun, fighther planes and tanks. These can be disposed of with your cannon. When you find a factory, it must be destroyed by continual bombing which will blow it up.

This was my favourite game on the compilation, although it's not that good, it's just that the others are worse.

Finally, there's Stealth. Viewed in 3D, your mission is to reach and destroy the Black Tower. Flying at low level, you must defend yourself against an onslaught of aliens and hazards such as fighter planes, missiles, and volcanoes. As you go, your energy store runs down slowly, with an extra ten units being used up with every shot. Energy can be collected on the way in the form of yellow energy fields, with red energy fields taking away your energy.

Although Stealth has the best graphics of these games, it is the least enjoyable to play, with little variation in gameplay.

None of these games stand out as particularly good, and £9.95 is rather expensive for what you get.

Rating: Iffy

Hit Pak

Elite's Hit Pak is made up of some fairly new titles, including 1942, Sacred Armour of Antiriad, and Scooby Doo, all three of which have topped the charts in the not too distant past. Also on the compilation are Fighting Warrior, Jet Set Willy 2, Split Personalities, and a previously unreleased game called Duet.

Hit Pak kicks off with Scooby Doo. Programmed by Gargoyle Games, it bears some graphical similarities to their Tir Na Nog/Dun Daragh series, with large characters moving over mainly left and right scrolling backgrounds.

Your friends Shaggy, Velma, Daphne and Freddy have been captured and are being held in a spooky castle, where they will be the guinea pigs of a mad scientist's experiment. It is up to you to rescue your pals from a fate worse than death.

Running up and down the corridors, ghosts and spooky spirits will try to scare you away, knocking you over on contact. I seem to remember Scooby being a bit of a wimp, but he has acquired a skill for punching ghosts which comes in handy.

The animation and scrolling is not up to today's standard, it being rather jerky.

A simple rendition of the Scooby Doo theme tune plays on the title screen, with equally simple in-game sound effects. I don't think

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Scooby Doo is a particularly good game. I found it rather annoying when a ghost appeared from behind a door without any warning and killed me.

1942 is a conversion from the arcade game set somewhere over the Pacific. In the second World War. You must fly your plane through waves of enemy planes, shooting as many as you can on the way and stopping at regular intervals on aircraft carriers to refuel. As you go, you can pick up jettisoned weapons from enemy planes you shoot down. If you are in a particularly tight spot, you can loop the loop to get out of trouble.

The islands that repeat themselves very often, scroll down the screen smoothly.

The key to playing 1942 is to remember the attack wave formations as they are the same every game.

1942 comes with new music, different to the original and some fairly weak sound effects. The graphics are not very terrific with small simple sprites and basic backgrounds. I didn't find 1942 particularly fun to play, and go bored quite quickly.

Duet, the new game on the compilation, is merely Gauntlet dressed as Commando. It's a game for one or two players, in which you must retrieve vital documents from enemy territory.

Set in a jungle, there are palm trees and undergrowth that form a maze infested with tanks and soldiers. All the features from Gauntlet are here: keys and doors, which are now barbed wire and shears, the baddy generators, all just with Commando style graphics.

There are so many Gauntlet clones about that any released now need to be pretty good to stand out. Duet's graphics are not particularly exciting nor are the sound effects, but it by no means a bad addition to the already published other games.

Next there's Jet Set Willy 2, the rather disappointing sequel to the classic platform game. After a nasty fall down the stairs, Willy hired some builders to take the sharp edges off. There was something strange about those builders — not only di they build various extensions to Willy's mansion but they refused to accept any payment. It didn't all come up roses however, as they left a dreadful mess, which Maria, the house maid is demanding you clear up.

Jet Set Willy 2 contains all the elements of a typical platform game, the gameplay involving timing jumps from platform to platform whilst dodging weird creatures that go back and forth in a set pattern.

Jet Set Willy 2 is quite old, and it shows. If you've got room for another platform game, then it will be of interest, but most will find it fairly run of the mill and rather boring.

The Sacred Armour of Antiriad is definitely the most professional game on the Hit Pak. You are Tal, who is the last hope to save mankind against the invaders. The game takes place in three areas — the forest, with apes that reach down from overhanging trees that have a painful look to them. Further on there is a deserted castle which leads to caverns with fire breathing dragons that will toast you alive if you're not careful.

You get from screen to screen by running and jumping on platforms and flying in your suit of armour, while shooting the aliens.

The graphics are superbly drawn, with excellent use of colour on Tal and the armour. The music is different to the usual Hubbard/Halway style, and adds to the atmosphere. The sound effects are also first class, especially when you shoot your gun.

Antiriad is a high quality arcade adventure that is great fun to play.

Fighting Warrior is a right to left scrolling beat 'em up. Your quest is to save the princess who has been kidnapped by a nasty pharaoh (oh what an original story line!) Armed with a sword, you must make your way across the desert and into the temple where the princess is being held, and fighting off various creatures with your sword as you go. You will sometimes be rewarded with a magical pot on killing an opponent. Each pot has a different effect when hit with a sword. Some take you to a different place, and some take you to the creature you killed.

The music is pretty boring, and there's just one sound effect as you hit an opponent. The sprites are large, but a bit chunky.

Fighting Warrior has only three types of hit and thus becomes boring after a short while.

Finally there's Split Personalities. If you ever played that old game Jumbly, you'll know what to expect. The idea is to complete a puzzle made up of squares that are pushes around inside a box. In the top left corner of the box is an arrow, where the pieces come out. Positioning the cursor over this and pressing the button pushes out a new piece of the puzzle which can be pushed around into the correct position. When moving the piece around, they will only stop when they hit another piece or a wall. As well as these, there are bonus items that must be pushed together, and bombs that will explode if they're not disposed of in time.

There is a time limit in which the puzzles must be completed. Each puzzle is the face of a personality or politician, and on the whole, they are very well drawn. The music and sound effects are adequate.

Split Personalities is good fun to play, and makes you want to complete the puzzle to see the next.

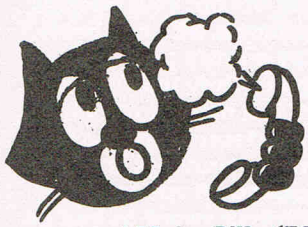
The Hit Pak is one of the best compilations with an excellent variety of games. Antiriad is the game that makes it all worth while — a very good buy indeed.

Price: £9.95
Rating: Mega

Is it a bird? Is it a plane? No, it's SUPER FELIX! He knows who

Poor Old Jo!

I didn't mean it. I only mentioned last month how amazingly difficult it was to speak to the Honourable Jod Mead of Melbournetronic on the telephone and how O.S.E. was so overwhelmed at being called back by this aristocratic Lady when 'pouf' (I beg your pardon! Ed) I mean 'puff' as in smoke and she



was gone! Major Billy ('My grandfather drove an armoured plated Rolls Royce') Brown claims that it was he who placed the CCI curse on the poor Jo. He apparently thought she was Stalin in disguise. She would not book a five year series of double page ads at a million pounds a month as he had politely suggested and so 'she got blown away'. Major Billy denies that fed up with President Reagen's shilly shallying about arms for the Contras, he had sent his beloved jeep as a replacement for a division of crack US combat troops who were previously staggering through the Nicaraguan jungle shouting 'Ole', 'Paella and chips' and 'David Carlos' and other Hispanic-style expressions in the hope of fooling the US Congress and the world press that they were native Nicaraguans. No, Major billy swears his late jeep was derailed and written off by a tank trap laid in a main street in West Hampstead by 'those lefty pinkos in the Pentagon whose guts are the colour of my canaries' fanny'. He believes they want to stop him settling North London's parking problem with a single well aimed cruise missile. Frankly I'm not surprised at the late Jo Meads departure. I would do the same if I could. Viva Mastertronic Viva Nicaragua! Vuva Tu Culo (whatever that may mean).

The Divine Sarah Burnt Heart

And who, I hear you cry, is the Divine Sarah? Well, the Illegible Michael Boxter (who has the Solutions if you can find the problem) confided in me most confidentially (I have sworn to tell no-one except you, my four million secret readers) that he did not feel completely up to all the tasks a really suave computer PR person has to perform. Especially if it is something that is best done by a female girl of the feminine sex — if you see what I mean. So after a recent advertising campaign (worth a mere £5 million) in New Scientist, Penthouse, Campaign, Health and Efficiency, Dog Lover's Journal, Stage, New Musical Express, BMX Action Bike, The Lady, and the Liverpool Post, and scouring the country on a tandem, he found the only real woman in the UK called Sarah (all the others I can assure you are fakes.) She is not only a brilliant Liverpool poet (Adrian Henri eat your heart out) and PR release writer she is also, I am authorised to report, a nun, the survivor of a really flaming romance, a star advertising Art Director, she fought in the Arab/Israeli Wars, and is an internationally renowned gourmet cook. She was unfortunately expelled from her convent for inventing a new kind of exposure and trying it out successfully, on the main building. for relaxation she runs a 'Help the Vagrant' service at Victoria Station making sure such well known tired and emotional wanderers as Michael Foreman Editor of Microscope get on the last (and wrong) train to Brighton. All this at 21 when she is still beautiful enough to be asked to pose for the centrefold of The Optician's Gazette. O.S.E. told me he first set eyes on the Divine Sarah at one of Lady Amanda Bariolasoff's lunchtime champagne bashes at the Rock Garden. Boozed up computer hacks and (yuk) reviewers were lying on the caviar strewn floor for the Divine Sarah to walk over them. And a very eminent couple of games company M.D.'s were drinking Dom Perignon out of her solid glass wellies. The Illegible Michael just stood there looking like the cat that had swallowed the dairy. Ah yes, Divine Sarah Donavan as the songs says, no-one can stop you now. And if you need a good PR agent, I'm sure I can recommend someone...

D & M Doppelgängers. Would you buy a second hand Aston Martin from a pair like these?

Domark of Cain

So desperate are the producers of James Bond films to find a new 007 that they asked CCI to stage a real life shoot out in the grounds of CCI Tower among the several million applicants. 'Shoot The Living Daylights Out of Everyone' was the sole instruction. All funeral expenses were to be paid by Domark. By some amazing coincidence the two final survivors were two very criminal looking types who bore an unpleasant and, of course, completely false resemblance to Dominic Wheatley and Mark Strachan, joint Managing Directors of the aforementioned Domark. I know and you know, dear Reader, that two such famous caring people would never create or enter such a savage suicidal contest but I can assure you that everyone else even David, the Count of Monte Carlos was totally taken in by these imposters and their demands for 'more corpses and lots more blood!' I can prove they were only Domark clones because I heard them bawling about a terrific new event thought to be a game called 'Friday the 14th To Live and let cry Baby Bloomer Trivial Pursuit Part 17', and telling every other computer magazine that review copies were on the way (It's the easiest way of getting them pirated). But these two vicious pretenders can't fool you and me, Reader, can they? We know the gentle peace-loving joint MD's of Domark would never even consider such degenerate titles, or wear such obviously fake bowties, don't we? What worries me is what happened to the real Dominic and Mark? Buried in a shallow grave beneath the centre court at Wimbledon, I suppose. Still with their wealth, why should they care? never mind, I swear these two evil doppelgängers won't get away with it. We'll think of something yet, won't we Reader. Wait a moment while I play my violin and shoot the initial D and M in Mrs Hudson's wardrobe. See you on Wimbledon Common at midnight. And don't forget to bring your weapon — you may need it to deal with such ruthless and evil men.

Quinn of the Road

She can't fool us! Oh that unscrupulous Gremlin (*Games Reveal Every Monty Lives In Nurenburg*) organisation (mentioning the name is tantamont of a death sentence!) is not content with taking over the UK, its tentacles are spreading and spreading. Beneath the Canadian snows it is working away to dominate the AMGA Empire and even the pouvre French are for it. One of G.R.E.M.L.I.N.'s most ruthless operatives, who calls herself Sue Quinn (is anybody going to believe that?) has taken over the Jaguar Company so taht she can drive in the 24 hour Le Mans race. I know for a fact that her car has guided missiles behind the fog lamp, a laser in each wheel and is fitted with skids which emerge from the doors sills. (Later on it will be disguised as an Aston Martin and used in a Domark James Bond film). Lord help any of the other cars in the race when the furious Sue ('Litigation is my middle name') Quinn flashes by. They'd better get out the way fast before they get a Quinn missile up their exhaust pipe. Other games companies who hoped to compete with G.R.E.M.L.I.N. at Le Mans or anywhere else, be warned, hari-kiri is a better way out.

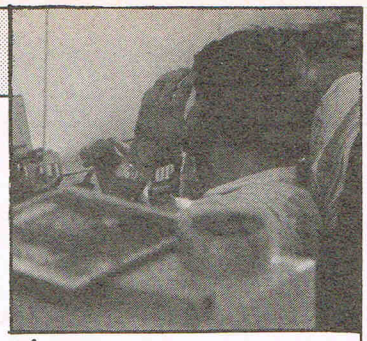
Ocean's Away

And who were the two distributors who wanted to 'settle it outside' at the launch of Ocean's Tai Pan? No, no Ocean isn't starting a kitchen utensil shop, it's a new game. At least I think it is. Most of the attention at the elegant Chelsea Chinese Restaurant was stolen by the two over emotional distributors who seemed to want to work out some private differences over shares of the software market by pounding each other to the fashionable pavement. There was a moment when it seemed that International Karate or the Way of the Exploding Fist were more likely titles. But enthusiasm for China swept over them finally and they drowned their sorrows in tea and Peking duck. And Nem Yo Horengkai Ko to you, too, Teresa, Editor of Your Sinclair. These games launches, they're such fun. Never mind next time we might take a look at the game. Probably much less entertaining.

Computer People No.1

Is there something that can be said in the favour of a games reviewer? I doubt it. We all know that frantic, lonely magazine editors go out to the lowest and seediest bars and opim dens in the east (generally around Romford, Lowestsoft or Epping Forest where Lesley Headlines hangs out), and drag out anyone who looks totally depraved and immediately appoint them 'Chief Games Reviewer' — if they are sufficiently illiterate that is. Many are called but few are chosen — they are mostly just not deep enough in debauchery and all round evil to last the course. Sitting day after day in front of a monitor screen tearing to bits the months or even years of some poor programmer's work in a vicious word or two takes depths of widkedness to which few can aspire. you meet them at press launches recognisable by the grubby ingraved sneer, petrifying shreds of 501's, yesterday's dog-end (still burning) behind the left ear and the knives they are wearing — in their backs. They are generally holding three drinks — one in each hand. By natural nurture, piratical, they must be no more than aged 17 but 4 million years old at least in ruthless cynicism and about three years two months in intellience. Would anyone who has a spark of human dignity or a semblance of pride or decency spend all their time trying to find faults with some poor innocent game? They just wait scowling for a 'bug' the finding of which 'makes my day, punk!' as they so delicately put it. Games Reviewers! In the middle ages they would have been left to rot in the stocks or had their nostrils slit.

Why am I telling what you already know? It is just that CCI has gained another contemptible example of this unholy species who goes with the arrogant pseudonym of Tony 'Whopper') Organ. He also uses a multitude of other aliases, male and female in virtually every magazine (who do you think George Dural really is? And surely you don't believe 'Tony Hetherington' is a real person?) In fact Organ is personally responsible for most of the really sadistic reviews that have ever appeared in any computer magazine. All



↑ CALL THIS A MAN? NO... ITS A GAMES REVIEWER! YUKK!

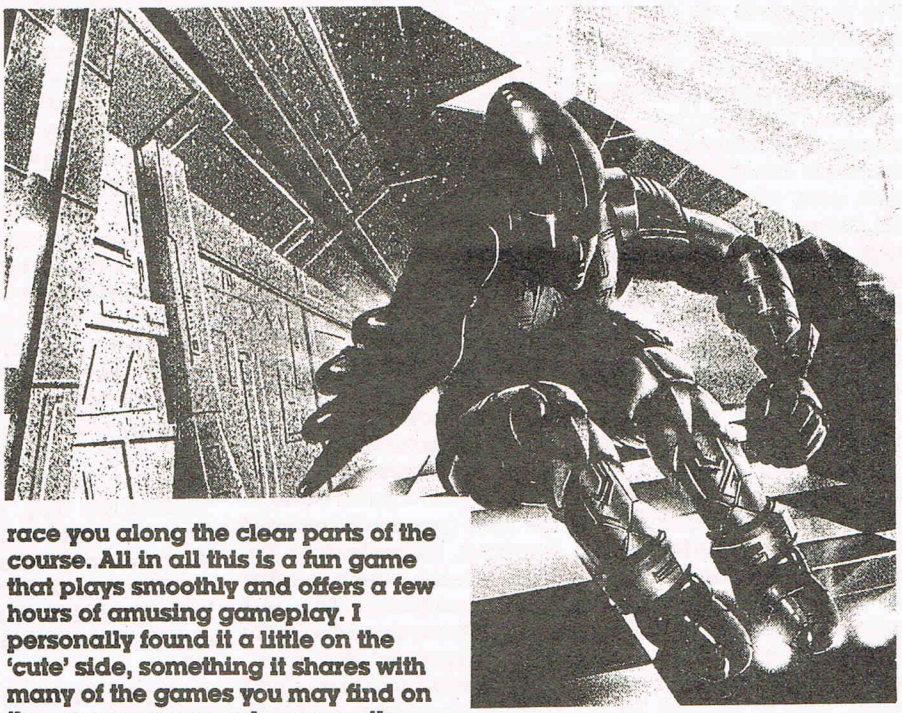
those other names you read are just front men for this truly alarming person. (I understand the well known vampire Count Dracula is *terrified* of him!) He must have some malign power over O.S.E. (who wears a string of garlic around his neck when talking to 'Whopper' Organ) or why should such a horror be let loose on us all? Everyone here at CCI Tower is wearing shades to avoid seeing the frightfulness that shambles in salivating every morning and shuffles out with blood under his fingernails every night, the grotesque features alight with the evil of the day's destruction. Whisper 'Whopper' Organ to a games house these days and they just fold up their tents and steal away. Games reviewers! Yuk! Anyone got any silver bullet?

Next month I'll tell you all about other delightful computer people like Product Development Managers — if you can stand it.

YOU TELL 'EM PRINCESS KRAITOA!
YES YOU LITTLE WORM, I DID SAY THAT YOUR ADVERTISEMENT WAS A BARREL OF GARBAGE AND NOT GOOD ENOUGH FOR CCI!

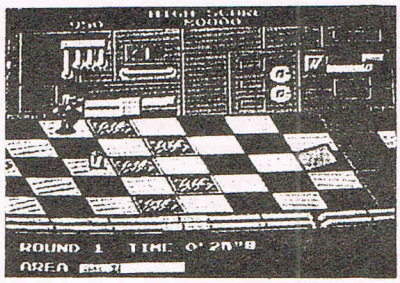
METROCROSS
U.S. Gold
C64

CRISP



Licences are now so important to software houses that some labels seem to be inventing their own. While we wait for 'Magmax' and 'Rugar' here's 'Metrocross' and I can't seem to recall the original coin-op they're supposed to be derived from. Is this all a fiendish plot to get even more money from us? I think we should be told!

Metrocross is already out on the Atari ST — one of the most disappointing U.S. Gold releases on that machine — so I can't honesly say I was looking forward to it on the CBM. It plays a bit like Gremlin's 'Trailblazer' except flipped on its side and graphically it resembles something that escaped from a Nintendo console. If you think that's a compliment, read on . . .



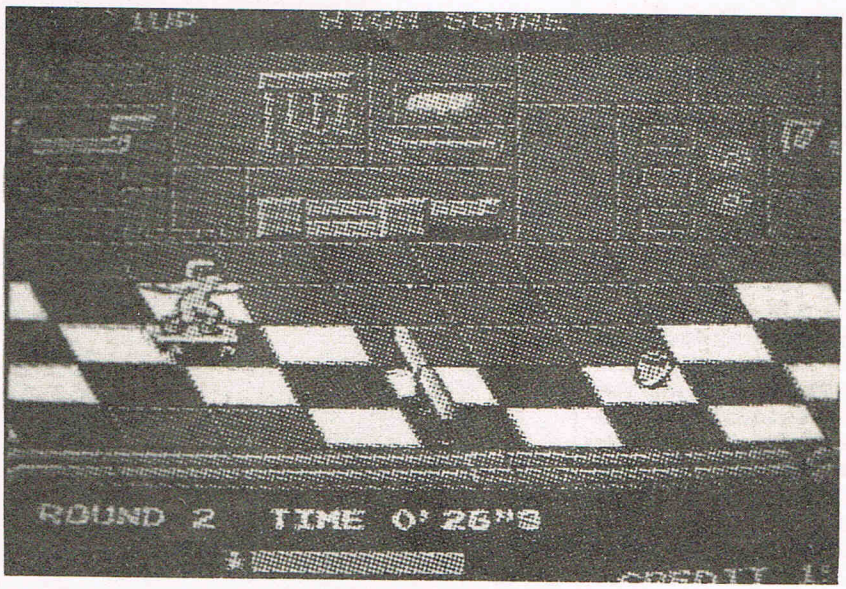
The game is basically 24 obstacle courses run against the clock. Your little man races along a grid of coloured squares (looks like a chess board) towards the finishing post, his progress marked by a small bar at the bottom of the screen. He can move up or down the screen or he can accelerate speed as the course scrolls to the right. From this side comes a series of hazards, the simplest being rolling coca-cola cans that you just leap over, the hardest being rats that attack your shoulders and have to be shaken off (ummm!). Some squares contain booby traps or springs, others have hurdles that will knock you down if you don't time your jumps, and green squares greatly reduce your speed by 1/4. If you're lucky you may use springboards or skateboards to race you along the clear parts of the course. All in all this is a fun game that plays smoothly and offers a few hours of amusing gameplay. I personally found it a little on the 'cute' side, something it shares with many of the games you may find on the new game consoles currently appearing in the shops.

Such games, while technically excellent, seem to lack the hard edge that yer genuine computer gamer may have grown used to and it underlines that many of the great coin-op labels (Nintendo, Namco etc.) design some of their games with Oriental or Japanese audiences specifically in mind. Only time will tell if these games are equally attractive to us.

Metrocross is worth checking out, especially if you're a slightly younger player. If not, then hang around for 'Slap Fight' or 'Flying Sharks' . . .

T.M.

Graphics: ★★★
Sound: ★★
Playability: ★★★
Rating: Crisp
Price: £9.99 (cassette)
£14.99 (disc)



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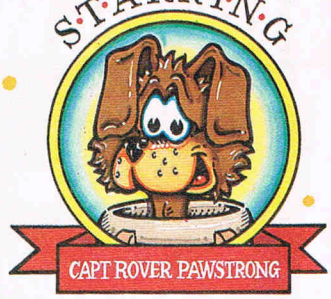
STAR PAWS

S·T·A·R·R·I·N·G



Out in the farthest reaches of our Galaxy there lives a rare creature known as the Tasty Space Griffin. Long ago this bird was acclaimed as a galactic delicacy, and acquired such value that it came to be used as an extremely valuable unit of inter-galactic currency, traded on the stock markets of the universe.

On the moon of a distant planet, a gang of unscrupulous mercenaries have been secretly breeding the Tasty Space Griffin and plan to flood the market with them, thus destablising the monetary system of the entire universe, and allowing them to seize power.

Starfleet command intended to send Captain Neil Armstrong to destroy this evil plot, but due to an error on the notoriously unreliable series seven astro-telex, our hero, Captain Rover Pawstrong has been sent instead. Vastly inexperienced and totally unsuited for the task, Captain Pawstrong's mission is to capture or destroy every one of the Tasty Space Griffins.

You control his movements as he scours the planet, above and below ground, aided only by the occasional visit of a scout craft, dropping off essential supplies...

New From SOFTWARE PROJECTS

Software Projects Ltd., Bearbrand Complex, Allerton Road, Woolton, Liverpool, Merseyside, L25 7SF.
Telephone: 051-428 9393 Telex: 627520.

PREVIEW STAR PAWS Software Projects

Set on a desolate planet, clad in your space suit, you must catch the speedy griffins by diving on them rugby tackle style. These tasty space griffins runs very fast, but are cheeky, and will stay just ahead of you.

There are holes in the planet surface which lead down to mine shafts where more griffins can be found. Extra light must be found in the form of lamps every now and then as well as energy displayed in the form of a turkey that turns into a skeleton. There are eight mine shafts, with a griffin on each one.

Once again CCI bring you another first: a preview of soon to be released game from Software Projects 'Star Paws'. In an attempt to put a stop to the larger companies continually raising their prices, all forthcoming Software Projects games will sell for £5.95. Star Paws is the first in their range of mid-priced games.

In the game you take the part of Captain Rover Pawstrong, who was sent, due to a mix-up with an astro-telex, on an inter-galactic mission instead of Neil Armstrong. You must now carry out the task of capturing all the 'tasty space griffins' which are a reare inter-galactic currency. Some nasty people are planning to mass-breed these birds and cause the economy to crash. Inexperienced as you are, this task must be completed before you can return home.

While on the surface, your scout craft drops off boxes containing food, weapons, and something that takes you to one of the sub-games. This is a puzzle rather like split

personalities that must be completed within a time limit of which there are four. The second sub-game has you aiming a cannon at the griffin, with only the amount of cannon balls collected from the surface and mines.

Our Editor was shown an early version in Liverpool (believe it or not at the Grand National) and came back saying he thought it was a real winner — and it wasn't the champagne he'd been drinking either (nonsense it was fruit juice! It was the game I liked! Ed.).

Star Paws is very good to look at and has an excellent sense of humour. It seems set to be a major threat to US Gold's Road Runner — especially at £5.95, which like Gremlin's mid-price brining big change in what you pay for 'full-price' games. Well done, Software Projects!

Thrust — Firebird

Thrust . . . I thought about the 64 version that became a smash hit, and was raved about by anyone who was anybody. Firebird . . . I thought about. Shark, Runner, Torpedo Alley and all the other monstrosities that they released on poor unsuspecting C16 owners. Ithough about the "screen pictures shown may be different machine versions of the game," shown on the inlet card. Ummmmm . . . very suspect. Before I give you a verdict of the game I'll give you a rundown of its storyline.

You have been commissioned by the resistance to steal some pods — which if in the hands of the Intergalactic Empire — will become mega-powerful sources for their battle grade starships. These pods are hidden on the Empires storage planets and each planet is defended by 'Limpet' guns, powered by a nuclear power plant. The limpet guns can be taken out with a couple of shots but if you can't get at them, blast the power plant, this disables the guns temporarily. If you keep firing at the power plant the guns will be out of action for a long time, but if you fire too much, the reactor will reach a point where it gives you a countdown before it explodes. If you have your pod, you can make good your escape AND get a bonus for destroying the planet, otherwise you have failed in your mission.

You collect pods by hovering near them and activating the tractor beam. Once you have hold of it you swing all over the, as it drags you down — like a prisoner with a ball and chain. Fuel is also taken with the tractor beam but it sometimes uses up more fuel than its worth.

My verdict on this game is . . . EXCELLENT! This game is just superb! It has all the addictive qualities of the 64 counterpart and even all your fingers splayed over the keyboard is comfortable. The feeling of floating in space is the key to this games' addictiveness and it has been captured perfectly. This game is the best budget game on the C16 and it would deserve an Awesome rating, but for the fact that the sound is limited and the graphics flicker very badly.

I order every C16 owner to get this game. No-one who has a C16 could possibly live without it!

Price: £1.99?
Graphics: ★★★★★
Sound: ★★★★★
Playability: ★★★★★
Rating: Mega

Max Torque — Bubble Bus C64

CRISP

'Max what?' You ask. Not, it's nothing to do with that computerised humanoid Max Headroom, but a motorcycle racing game. ('Maximum torque' get it?)

Viewed as normal from behind and slightly above the rider in 3D, Max Torque tests your skills at racing your turbo charged motorbike over six stages of twisting, turning tracks through a variety of scenes. There are seven different riders and their bikes to choose from, each having different power and steering sensitivity. The instructions tell you they are different, but it's up to you to find out how they handle. I would have thought it more sensible to describe each rider in the instructions, as it's hard to know whether it's you or the bike oversteering.

After selecting your rider, it's on to the race. Watch the lights turn from red to amber and then to green as you rev your engine and burn rubber at green. As you accelerate you pull a wheelie, and a bit of turbo boost will get you from 0 to 60 in under a second! (Match that bikers!) You get 60 seconds in which to complete each track. The six tracks all follow on to one another without a break (as in the arcade game Hang On), with a different scene on the scrolling horizon. As the courses twist and turn, an indicator in the form of an arrow appears at the top left corner of the screen giving advance warning of bends. At the sides of the track are bollards which will cause you to crash if you touch them. The other riders must also be avoided, as time is wasted during a crash, and accelerating afterwards takes further valuable seconds.

The graphics are quite large, with a colourful, well drawn sprite, but unfortunately the other riders are lacking in detail and colour. The track scrolls smoothly and this is strong and effectively coloured, but the horizon is a little jerky. The sound effects are quite simple but certainly adequate for the game.

For most people Epyx' Super Cycle is the best of its kind around and while Max Torque may not quite come up to its standard, it is without doubt worth considering if you're on the lookout for a good racing game.

T.H.

Price: £8.95 (c) £12.95 (d)
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

Snap Dragon — Bubble Bus C64

DODGY

No! Please, no more karate games! We have all surely had it up to here (where? Ed) with the same old games re-hashed with slightly different graphics and almost identical gameplay! And what's more, they all claim to be the meanest thing since Nick Cotton (who? Ed), with ace graphics and sound effects, umpteen zillion sprites, and the most realistic martial arts game ever! The truth is that plain karate games had their day years ago and nowadays must have something new and extremely original to offer, or simply sell at budget price. I'm afriad Snap Dragon neither has anything original, nor sells at budget price.

The object of Snap Dragon is to defeat all of the warriors on each level and attain the grade of Black Belt 5th Dan. The game is played rather like Kung Fu Master in a number of scrolling corridors but with fewer opponents that need more of a fight. You control your warrior with the standard eight joystick positions with and without the fire button to access the various punches, kicks, and pole attacks. Letting go of the joystick starts the autoplay, when the computer carries on fighting your opponent.

The sprites are small when compared to other karate games but they are very well drawn. They're not, however, particularly well animated considering their size. The backgrounds are very simple, and hardly vary from level to level apart from the colour, and the scrolling is acceptable.

Snap Dragon claims to have 'super sound effects', but in reality they are very simple and could hardly be called realistic.

Snap Dragon gets boring very quickly and doesn't justify its £8.95 price tag. It commits the ultimate sin in karate games by all the opponents being able to be defeated with a continuous sweep kick. I couldn't recommend Snap Dragon as there are far better karate games on the market to choose from. It isn't that it's bad but that it is too late for this kind of game to impress anyone except absolute beginners.

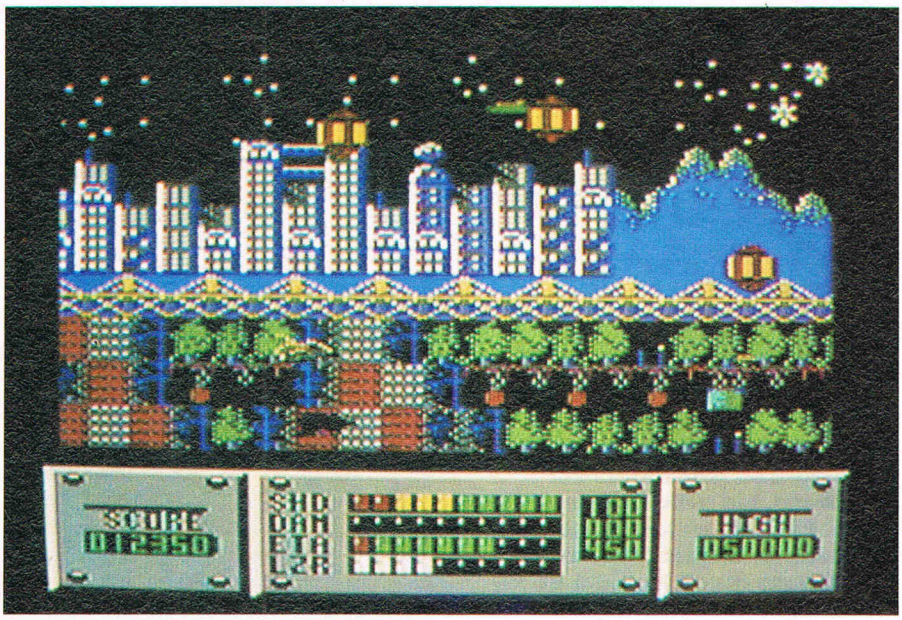
T.H.

Price: £8.95 (c) £12.95 (d)
Graphics: ★★
Sound: ★★
Playability: ★★
Rating: Dodgy

C64

MEGA

Plasmatron — CRL



You are Pilot Captain Ford. Your status is expendable. Your craft — Plasmatron — a high tech shooter. Mission is reconnaissance. Destination — Loughton 2. Purpose — alien identification. You are on the Deserted Empire colony. Special considerations are 1) Plane fractured; 2) Aliens hostile; 3) Deserted base exits point.

Ford didn't stand a chonce. "Good luck". "Thank you sir".

What a straight forward scenario, sharp and to the point, but giving all the details. A lot better than the reams of instructions for some games.

As you've probably guessed this is a shoot 'em up. And a good one at that. It scrolls horizontally and just shoot everything that comes at you. The aliens are varied and the graphics are excellent. Flames shoot up from buildings which give an excellent effect. Little 'tin pot' robots fly at you, sirens wail out, and all manner of things go at you, bringing down your shield power.

Graphics, as I said, are excellent, and sound isn't bad either. This is a great game that easily matches all these coin-op conversions around at the moment. One of the best shoot 'em ups available. Excellent. Well done CRL. Looks like you're back on form with this and Oink. CRL for President!

Price: £8.95
Graphics: ★★★★
Sound: ★★★
Playability: ★★★★
Rating: Mega

Terra Nova — Anco C16

IFFY

Terra Nova is the latest game by C16 specialists Anco who seemed to have slowed down in their output of games somewhat. (I believe they're on the Amiga trail).

You were on a routine mission to explore a planet for minerals, and the long reported that the planet was uninhabited, with traces of minerals. You set out in your craft to comlete a short range scan, and guess what? The reports were wrong, the planet is inhabited, and not only inhabited by the every day everage aliens, but the aggressive killer kind — and they don't like you much.

There's only one thing to do — that's blast 'em! You fly up the screen, blasting everything in sight — posts of fuel and ammo — and anything else that comes at you.

So that's about the sum of it, shoot ammo, fuel and aliens. Dodge bullets and dodge aliens. Now this wouldn't be that bad, but when you shoot, things seem to pass right through your bullets and kill you in an instant. This is a very frustrating aspect of the game and spoils it considerably. I think that the Plus 4 version might be better though, as the C16 version seems rather amateurish and unpolished. You have to complete each level 3 times which is boring and pointless.

This game is good and the speech as it's loading is an incredible feat — it's just amazing as it says "Welcome to Terra Nova, A journey into the unknown."

This will appeal to shoot 'em up fanatics, but I found the game not sufficently interesting and rather a disappointment.

C.K.

Price: £7.95
Graphics: ★★★★
Sound: ★★★★
Playability: ★★
Rating: Iffy

Aardvark — Bug Byte C16

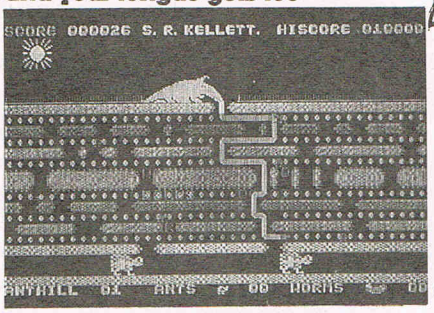
CRISP

What's really, really long, wet, sticky and quick as a flash? (What's really short, and on the line? Your job if you don't watch it! Ed) Aardvark, that's what, (phew!) the new game from Bug Byte programmed by Steve "It's mean" Kellet!

You must control aardvark's tongue, and slurp your way around an ants' nest cleaning it up of all its ants eggs and any ants, worms and queens you can get your hands — I mean tongue — on oh yummy, slurp, slurp, slurp! But beware of the spider that comes out at night he adds to your troubles which come in the form of worms and ants.

I know I said that you could eat worms but only under special circumstances: Ants must be eaten head on, if you let it get the sides of your tongue it kills you, also you can only eat the worms from behind, let them touch the sensitive tip of your tongue and bang your dead again.

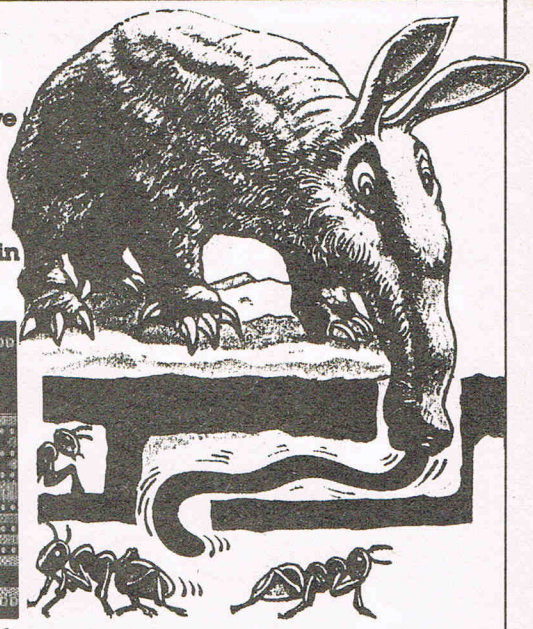
The game is set out in Pac-Man style and you slither your tongue, slurp, slurp, through the ants nest in a binge on eggs, but if you too far and your tongue gets too



convoluted you might find yourself getting done in by the ants that come crawling onto the screen from the sides.

Aardvark doesn't take itself seriously, and there's not real storyline to this game either. It's just good fun at a good price. Not the best game in the world, but well worth £3. And remember aardvark never killed anybody!

C.K.



Price: £2.99
Graphics: ★★
Sound: ★★
Playability: ★★★
Rating: Crisp

MICRORHYTHM

Have you ever thought of buying a drum machine for your Commodore 64, but have been put off by the price? If so, your prayers have been answered with Firebird's Microrhythm.

Microrhythm is a new title on Firebird's silver range that retails at only £1.99! Yes, you can have a full, digitised drum kit with thirteen sounds for under two pounds. Interested? Then read on...

Microrhythm has three modes; bar write mode, song write mode, and real time mode. In real time mode, all thirteen sounds can be played by pressing the appropriate keys. This can be quite good fun, and you get to know what sounds are available. There is a base and a snare drum, three tom toms, a rim, a cow bell, a clap and a tambourine as well as an open or closed high hat, a crash cymbal and a gong. With the exceptions of the cow bell and the gong, all the sounds are amazingly realistic.

In bar write mode, you can put any of the aforementioned sounds (except the gong) into a sixteen beat bar. This is done by moving a cursor onto the correct part of the bar and pressing the appropriate key for the sound you want. The pitch of each sound can be altered with the +/- keys. Each sound can be echoed by simply pressing F (flam), and the time between the echo has also be altered, as can the tempo of the bar.

When you have written a bar, you may want to put it into a sequence of bars. To do this you must enter song write mode. Once in this mode, you can look backwards and forwards through the sequence of bars, or 'song' as it is referred to, and insert your bar. When you have finished, pressing S will play the sequence from beginning to end.

Microrhythm also has the facility to save a song to tape, and also to load and save sound sets, so perhaps Firebird are planning to release some extra sound files.

With the quality of its sounds, its ease of use, and its price, it makes the hardware drum machines look vastly over-priced.

T.H.

A must for anyone who enjoys a good Bang!
Price: £1.99 (c)

MEGASTARS of '87

Some games stand out from the crowd. They are the creme de la creme — what gamesplayers will remember as the really top entertainment. So *you* can remember which those stand out games have been so far this year, we have listed them with some of the comments made at the time. We can even, if you look on the pages following this feature, make it possible for you to buy those you missed – which is more than you can say for most computer shops!

C16 Classics III (Gremlin) (C16)

"Recommended Unreservedly"

January

"The third compilation of games by Gremlin, it includes Sword of Destiny (rated Mega), Jetbrix (rated Crisp), Gullwing Falcon (rated Mega), and Reach for the Sky (Crisp) — colossal value at £9.95. Even if you have one or two of these games, unreservedly recommended. C16 Classic III deserves to be No. 1 in the charts. (Rating: Awesome)."

Bridgehead (Anco C16)

"Very Playable"

January

"Bridgehead is a Green Beret lookalike. Really a horizontal version of Legionnaire, it has the same casual scrolling and sound effects. Armed with a knife and a limited supply of grenades, you must fight your way through five levels infested with sentries, and soldiers wit heat seeking missiles. The graphics are good, Bridgehead is very playable. NB. There is also a separate Plus/4 version which will work with a 64K ramboard or rampack."

Trailblazer (Gremlin C16)

"One You Shouldn't Miss"

January

"You are a ball and must travel down a course which scrolls smoothly towards you. There are several types of squares which either help or hinder your progress. There are the blue squares which bounce you, red which slow you down, green speed you up, cyan reverse your controls and purple throw you backwards. The graphics are large and colourful, if somewhat blocky, the scrolling is ultra-fast and smooth as Samantha Fox's..... knee. There is a catchy theme tune and great sound effects. Overall this game is highly addictive and one you shouldn't miss for any reason whatsoever." (Rating: Awesome)

Avenger (Gremlin C64)

"Will be enjoyed"

February

"The Grand Master of the flame, Yeamon has assassinated your father who brought you up in the way of the Tiger. You have promised to the God Kwon to avenge the act and recover the scrolls of Ketsuin that yeamon stole after the killing. The graphics are very high quality

Gauntlet style, and the music and sound effect are appropriate. Avenger is not just another beat 'em up, and will be enjoyed by a wider audience than its predecessor Way of the Tiger."

Trivial Pursuit (Domark) (C64)

"Great fun"

February

"Domark's interpretation of the best selling board game is as good as you could hope for. Up to six people can play, and players may be added or deleted at anytime in the game. The questions are asked by a little character known as T.P. The question appears in a speech bubble above his head. As well as plain questions, there are musical and graphical questions. Trivial Pursuit is great fun, especially with a group of friends."

Yie Ar Kung Fu 2 (Imagine) (C64)

"Good value for money"

February

"As you probably know from the first instalment, a gang of eight fearless fighters had to be wiped out. Well one of those eight, Yen Pei managed to survive, and has formed another gan just as deadly as the first. There's Yen Pei himself who has iron pigtails (nasty!), Po Chin who is a dab hand at fire breathing, and Li Jen who like throwing lightning bolts at you, to name but a few. The graphics are large and colourful as are the backgrounds. The sound is up to the usual Ocean standard (very good in other words). A game that is good value for money and a worthy sequel."

Future Knight (Gremlin) (C64)

"Go out and buy it"

February

"Future Knight is an excellent arcade adventure set on board a spaceship. Your man is satisfyingly immune to falls and he moves about the scrolling levels by ladders and running and jumping. He can also fire a number of weapons that can be found around the spaceship. In play, Future Knight looks like Paradroid and plays like Ghosts and Goblins. The bas-relief graphics are very effective, but some of the sprites are obviously derived from better known games. We love this game. Our advice is to go out and buy it, if only to see how an arcade adventure should be written."

Who Dares Wins II (Tynesoft) (C16)

"A Classic"

February

"Who Dares Wins II is, as you must know, a Commando style game, in which you must capture eight enemy outposts. The screen doesn't scroll, but flips quickly and smoothly. With good graphics and music by CCI's own Ian Waugh, Who Dares Wins II is a classic."

Superstar Ping Pong (US Gold) (C64)

"Should keep you amused for a long time"

February

"Smash your way into this great package from US Gold. If you played Imagine's version of Ping Pong and you thought that was good, then prepare to go crazy about Superstar Ping Pong. There are a number of useful options such as two different viewpoints, one or two players, and the choice of a semi computer controlled bat. There is also the ability to customise your strengths and weaknesses by the allocation of power points to certain shots. There are some great tunes and spot effects in the game, and the graphics are large, with the option of changing the bat and ball colours. Superstar Ping Pong is an enjoyable game that should keep you amused for a long while."

Sigma 7 (Durell) (C64)

"A very good package"

February

"Sigma 7 is divided into 3 subgames. The first is a great shoot 'em up style game, viewed and played diagonally which is very effective indeed. You must fly to the factory fighting off aliens as you go. In the second stage, you must collect all the dots from the paths rather like Pacman, whilst avoiding more nasties. As you collect the dots, a pattern will be revealed which will help in the final stage where the control unit must be reset by pressing the buttons in the pattern from Stage 2. The graphics are very good and the 3D works to good effect. The sound effects are reasonable and it all adds up to a very good package from Durell."

Handball Maradonna (Argus Press) (C64)

"Excellent speech"

March

"After the World Cup, and England's unfair dismissal by Maradonna, Argus Press hit back with Peter Shilton's Handball Maradonna. You play the team's goalie. You can either play a match or practice. In a match you must save four shots in each half. The graphics, although small, are detailed and move smoothly. There is also some excellent speech."

Footballer of the Year (Gremlin) (C64)

"A very good addictive game"

March

"Do you think you've got what it takes to become a top player/manager and win the Footballer of the Year award? Gremlin's Footballer of the Year gives you the chance.

You can choose to play for any club in the English League, and must take your team to the top of the First Division. The game is played with neat icons and menus with the chance to score a few goals now and then. Overall, a very good addictive game that will appeal to football fans."

Indoor Sports (Advance) (C64)

"Will keep you coming back for more"

March

"Advance's Indoor Sports is made up of three games. The first is a very fast and smooth airhockey — you know that game played on a table with jets of air that make the puck hover. Each player has a 'bat' and must simply hit the puck into their opponent's goal. The Bowling and Darts are also of a very high quality, and will keep you coming back for more."

Bounder (Gremlin) (C16)

"Very good value"

March

"Bounder has you controlling a tennis ball, bouncing on platforms high in the sky, and attempting to complete all of the courses. Among the hazards, there are walls, darts, and binoculoids, that will all burst you. Bounder is viewed from above, with the platforms scrolling over the ground that's a long way down. As a bonus, there's Planet Search, a Defender type game which makes the package very good value for money."

Pinpoint (Anco) (C16)

"Very addictive"

March

"Pinpoint is very similar to Spindizzy which was a variation on Marble Madness. You control a spinning top, and must guide it through ten 3D courses to a white flag. If you thought this couldn't be done on a C16, then think again. Pinpoint is very addictive and should appeal to everyone."

Shanghai (Activision) (C64)

"Will appeal"

April

"Shanghai is a version of Mah Jong, a Jong, a Chinese gambling obsession that pretends to be a board game. The game is played with tiles rather like dominoes that are stacked randomly into a pyramid. The idea is to remove all the tiles by matching up the symbols on them. Shanghai will appeal to those who go for strategical chess type games."

Way of the Tiger (Gremlin) (C16)

"A good variety of opponents"

April

"Being the adventurous type, your ambition is to become a Ninja by defeating enemies in unarmed combat, pole fighting, and Samurai sword fighting. Way of the Tiger has a good variety of opponents, but unfortunately not many moves. This is a bit of a shame, because the rest is excellent."

Jet Set Willy II (Tynesoft) (C16)

"Great fun to play"

April

"Jet Set Willy II is the sequel to the classic platform game. While in hospital, you hired some builders to make some alterations to your mansion. Unfortunately, they left a terrible mess, and you must now clear it up. The game is played over more than 80 screens of platforms and nasty creatures. Dotted around the rooms are glowing objects that must all be collected before Maria the housekeeper will let you go to bed. Jet Set Willy II has been converted very well, and is great fun to play."

Voidrunner + Hellgate (Llamasoft) (C16)

"Very good value and good fun"

April

"Voidrunner is a variation on Centipede. Written by Jeff Minter, it features loads of great graphical effects with lots of colour. Hellgate is not so good. It is played on a grid with aliens to be blasted with your guns on each axis. Together these games are very good value, and good fun."

Space Fiends + Liberator (Ariolasoft) (C16)

"Incredibly addictive"

April

"Liberator is excellent. It's a copy of Uridium with very good bas-relief graphics. If you want a Uridium style game, then get this as it's incredibly addictive and great fun."

West Bank (Gremlin) (C64)

"Great fun"

May

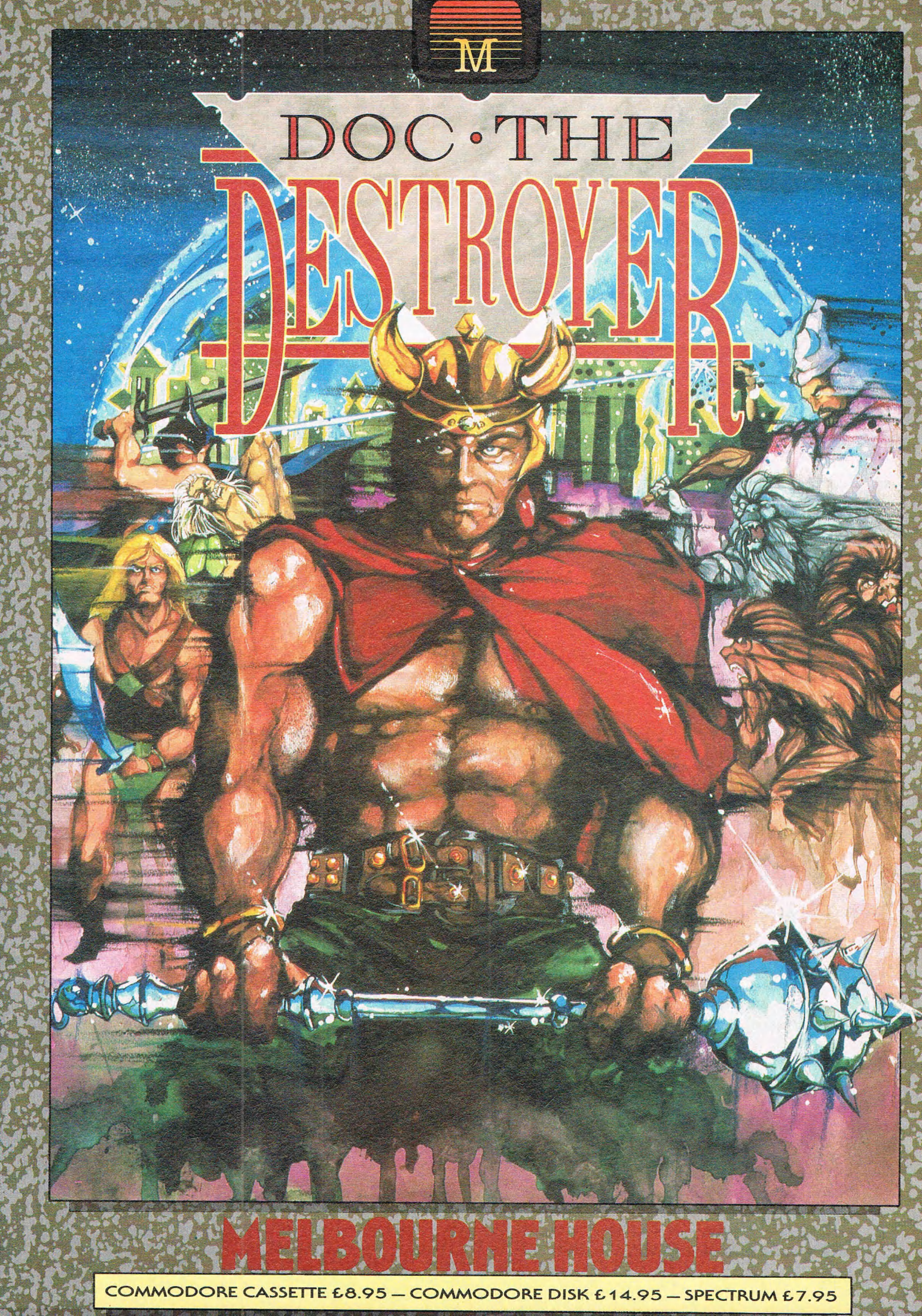
"Working at West Bank is not a job for faint hearted. In the wild west, it seems there are more bank robbers than innocent customers. Your job is to sort out the baddies by shooting them before they shoot you. The graphics are very large and colourful, and the music suits the game well. West Bank is great fun!"

Battle Star (Tynesoft) (C16)

"An excellent game"

May

"Battle Star is a first class shoot 'em up. The idea is to fly along an alien spaceship blasting pulse mines, shooting and dodging their bombs and weaving around the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protective encasements. The graphics are quite good, and there's some great background music. This is another excellent game from Tynesoft."

Tenth Frame (US Gold) (C64)
"Will appeal to everyone"

June

"Tenth Frame is a ten pin bowling simulation written by Brace and Roger Carver, authors of Leaderboard. Tenth Frame features the same high quality animation and graphics. This game will appeal to just about everyone, especially bowling fans."

Cholo (Firebird) (C64)
"A great game"

June

"Cholo is set in a nuclear holocaust. You and the other humans are sealed in a bunker. You must find a way to blow the lid off the bunker with the help of your droid. The droid has an on-board video camera which gives you feeling of being in it. The city is displayed in 3D vector graphics which are quite well drawn. Cholo is a great game, especially for Mercenary fans."

Pod (Mastertronic) (C64)
"Brilliant"

June

"Pod has no pretentious storyline or excuse for blasting aliens. You play across an interconnecting grid of wire along which your pod moves. Shooting the aliens that come down the screen results in some of the grid being inaccessible for a while as it mends itself. There are twenty five levels with great graphics and the urge to come back for more. Brilliant for £1.99!"

Auf Wiedersehen Monty (Gremlin) (C64)
"You'll love this!"

June

"In Monty Mole's final escapade, the authorities have caught up with him after escaping from prison to France. He must now collect enough money from all round Europe to buy a Greek island called Montoss. Auf Wiedersehen Monty is similar to Monty on the Run, and has the same qualities such a graphics, music, and playability. If you like the last one, you'll love this!"

Tomahawk (Digital Intergration) (C64)
"A must for simulation freaks!"

June

"Tomahawk is a helicopter simulator with vector graphics. As well as fighting enemy helicopters, there are buildings, electric pylons, and mountains to avoid. There are different missions, and options such as night flying, cloudy skies, crosswinds and turbulence. A must for simulation freaks."

Samurai Trilogy (Gremlin) (C64)
"A cut above the rest"

June

"Samurai Trilogy follows along the same lines as Gremlin's previous karate game Way of the Tiger. The three parts are unarmed combat, Kendo pole fighting, and a Samurai sword fight which all load separately. As well as fighting, you must train your body to obtain best results. Samurai Trilogy has very large characters, and is a cut above the rest of the oriental beat 'em ups about."

Nemesis The Warlock (Martech) (C64)
"Great"

June

"Licensed from the 200 AD comic, Nemesis the Warlock contains loads of violence. Armed with a sword, a gun and some fire balls, you must take the part of Nemesis and hack, slash and shoot your way through many levels of zombie attacks before meeting up with the evil Torquemada. Great mindless violence that gets rid of all that pent up tension!"

Shockway Rider (F.T.L.) (C64)
"A Knockout!"

June

"Shockway Rider is knockout! You've got to ride three moving walkways as if in some sci-fi city of the future. They go at different speeds and you can jump from one to another avoiding the gans that will throw bricks at you. The sprites are excellent and the scrolling is also very good. A Rob Hubbard soundtrack plays throughout the game, and adds to the fun. An excellent game."

Phantom (Tynesoft) (C16)
"An excellent game"

June

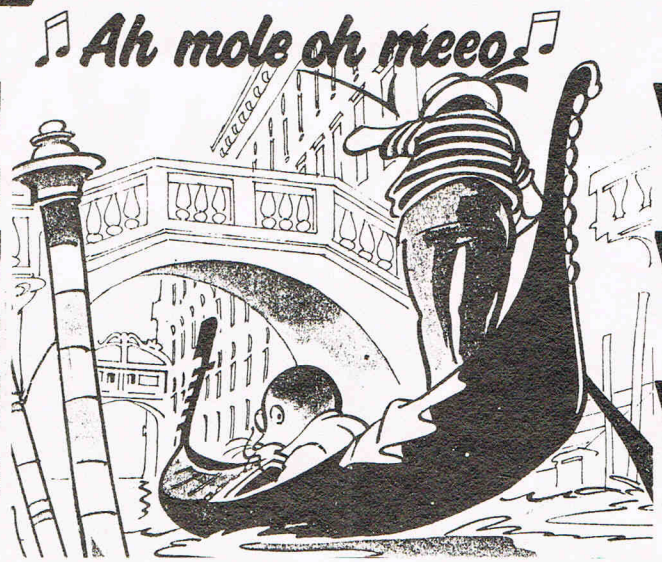
"If you're looking for a Gauntlet game for your C16, then look no further than Phantom. Once again Tynesoft have produced an excellent game, with gallons of playability. Making your way around the haunted houses, you must get rid of the ghosts with your laser. Money can't buy a spookier Gauntlet variant!"

Microvalue (Tynesoft) (C64/C16)
"Amazing, great value"

June

"A compilation of four games for under four quid? Yes, amazing, but true. The C16 version is made up of Drag Racing, 3D Maze, Apollo Rescue, and Gunslinger. The C64 version has Commonwealth Games, Ian Botham's Test Match, Bombo, an World Cup II. Both versions are great value at £3.99."

Competitions



WIN! WIN! WIN!

WIN! WIN! WIN!

Monty, Gremlin's mischievous mole, is not just shooting up the charts waving Auf Wiedersehen, but offering to provide C.C.I. readers with an absolute feast of good things. Monty, in Gremlin's new game, runs from country to country. So we are offering a gorgeous multi-national hamper full of exciting international goodies, plus a set of delightful Monty prints, and copies of the Monty trilogy: Wanted — Monty Mole; Monty on the Run; Auf Wiedersehen Monty.

Ten lucky runners up will get a set of these terrific Monty prints, and a set of Monty trilogy.

Here is what we want you to tell us:

1. What are three meanings of the word 'mole'?

2. What was the full name of the general called Monty who fought at El Alamein? (no it was not Rom-mole!)

3. To which position has Monty run on the charts this month.

Answers on a postcard please, and send by September 15th to Monty Comp.

Commodore Computing International
40 Bowling Green Lane
London EC1R 0NE

This one's for the UK only folks. Sorry we can't send food abroad!

MEGA MEGA MEGA MEGASTARS '87

Do you know the really great games of '87 so far? They are the games that have gone Mega or even Awesome in the CCI ratings. They are the top releases this year. They will be played, remembered and kept for a long time to come. Have you played them all? Have you got this year's Megastars in your collection? Probably you've got some — and maybe you missed the others. Well, here's your chance to catch up on those you didn't get to play — or didn't get to own. To experience the mega thrill . . . We've put together a list of mega games that you can buy now — and even get them at reduced prices if you buy more than one.

You won't find most of them in the shops now. That doesn't mean they aren't great to play and you know they are all guaranteed mega rated. You can't ask for a better recommendation than that!

CCI's MEGA OFFER!

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C16

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£5.75 C64
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Trailblazer

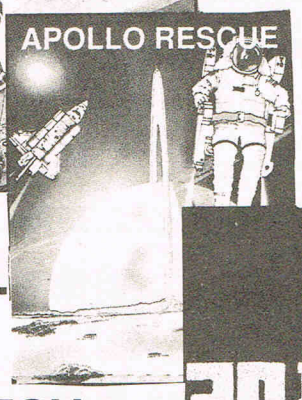
This is one of the great games of recent times from the star Gremlin stable. C.C.I. gave it a Mega rating which it richly deserves.

Trailblazer is set in a fantasy world: a road through space spanning the depths of the extreme. Control your bouncing ball avoiding pits in the road surface. Use speed ships, slow strips, avoid obstacles. One of those simple but addictive games which seem to last forever...

The graphics are large and colourful, the scrolling is ultra-fast and smooth as Samantha Fox's..... knee. There is a catchy theme tune and great sound effects. Overall this game is highly addictive and one you shouldn't miss for any reason whatsoever.

It was £9.95 for cassette, special offer price for C.C.I. readers C64 £5.75 C16 £4.60.

ANOTHER CCI MEGA REVIEW OFFER



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LOOK FOR OTHER OFFERS ON PAGES 84, 85, 88, 89.

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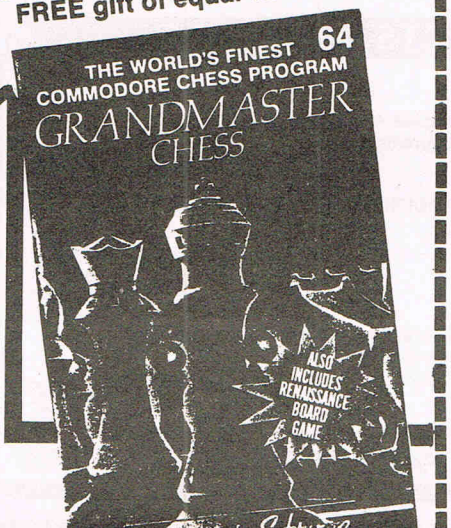

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40 Bowling Green Lane, London EC1R 0NE.

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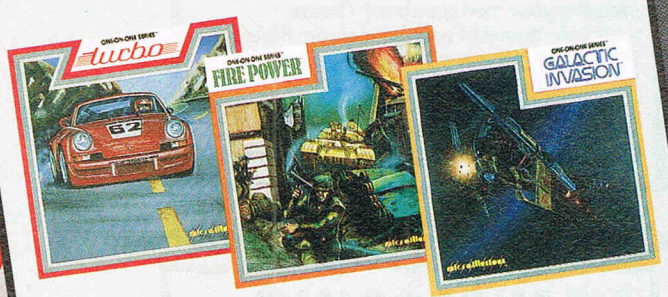

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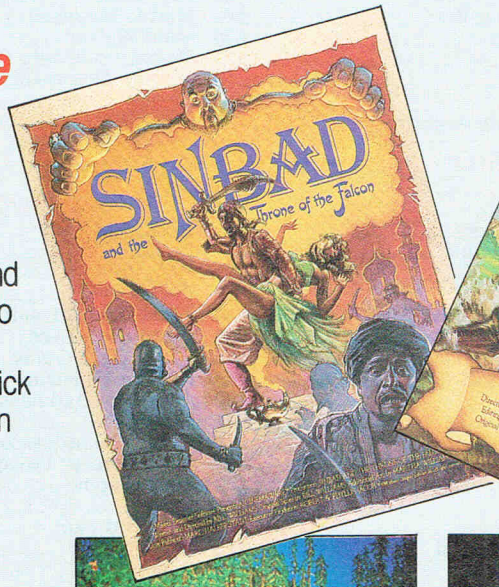

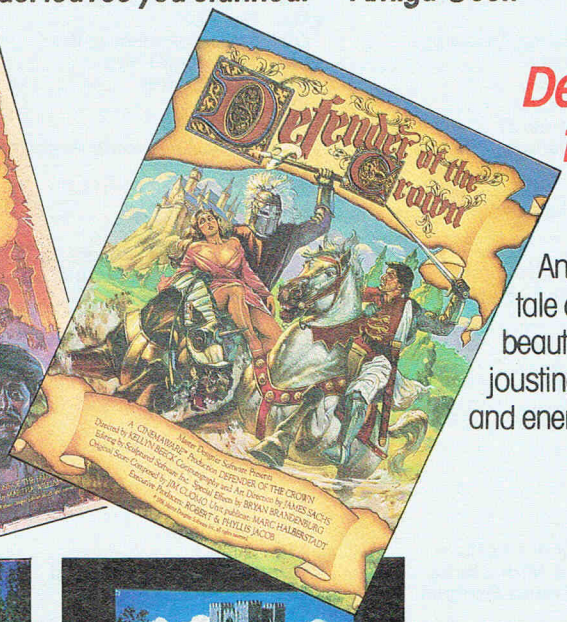

Defender of the Crown

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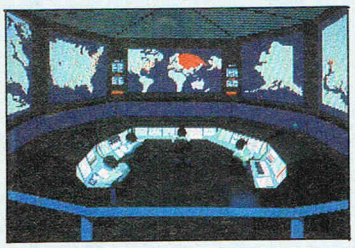

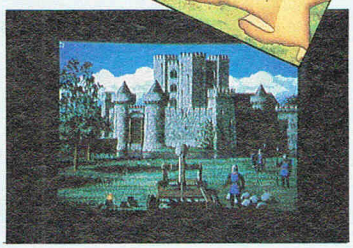

Deja Vu

Set in a sleazy underworld reminiscent of Raymond Chandler, this game allows interaction with almost everyone and everything on screen.

Uninvited

A high resolution graphics create a compelling Gothic setting which, combined with horribly realistic sound effects and sophisticated animation, will draw you into its complex web of mystery.

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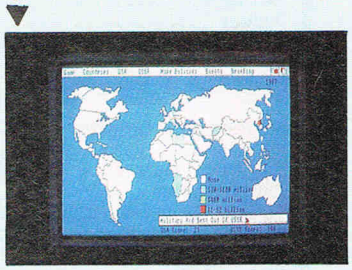
A strategy game of geopolitics in the nuclear age. ▼



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"Games... that are crying out for someone to play them"

Adventures on the Amiga are starting to appear in a big way, so Andy Moss, CCI's resident adventurer puts Mindscape's Deja Vu and The Uninvited through their paces.

For any computer game to be successful there has to be a number of factors. Playability, excitement, tension, and especially in adventures a real sense of atmosphere, of being there and discovering first hand what mysteries lie before you. Packaging also plays a big part, in setting the scene for your story, and right away with these games you are thrown into a world of mystery and suspense, as the scenarios are described on the boxes in text book fashion bringing the reader right into the heart of the games immediately.

I first played these two adventures on a Macintosh and thought at the time what great games they would make on the Commodore. Imagine my pleasure when I found out that not only will they be available on the 64, but have just been released for the great Amiga. This is great news, for lovers of truly original and complex yet highly entertaining adventure software. I say original, because Mindscape (producers of the wonderful Defender of the Crown) have perfected a way of producing interactive graphic stories with large volumes of text without the user having to type a word. It's all down to icons, a mouse, and your ability to carefully examine each picture for clues.

This playing system is unique, and can only really be utilised on machines such as the Mac and the Amiga because of their graphic screen handling capacities. But before I take you through this innovative system, let's first though have a look at each of the adventures and their respective storylines. in Deja Vu, the plot is really very simple, you wake up in a shower with a head that feels like wild horses have just run over it, and mind that it totally blank. You don't know your name, where you are, or how you got there.

What's more, you find a needle mark in your arm (sodium pentathol perhaps) and a huge bump on the back of your head.

Foul play has obviously been at hand here, if only you could remember how and why. Exploring a bit makes matters worse as you discover a dead body slumped across a desk in an upstairs office, and that can only mean one thing, you actually killed the guy, or you're being framed for the murder! This is great stuff!

The Uninvited is a completely different type of story, one that has a distinctly gothic setting and a storyline that is nothing short of horrific.

Driving with your brother along a country road at the dead of night in a terrible storm is not the best way to avoid trouble, and sure enough it's trouble you get, as your car decides it doesn't like the road it's on and tries another direction, straight into a tree! The last thing you remember before blacking out is your brothers startled cry, and blackness rushing in. You wake up to find your brother gone, and the

EXAMINE OPEN CLOSE SPEAK OPERATE GET HIT CONSUME and a little box entitled SELF.

car about to explode, so after managing to escape that situation you arrive soaking wet at an old house, where you hope there is a telephone and a towel.

It goes from bad to worse as you enter the old house and are drawn into a frightening world of ghosts and ghouls and things that go bump in the night.

Icon Display

Both games use the same unique screen display and input system, which as I mentioned before is icon driven. You see essentially three sections, to the left of the screen is the actual graphic location drawn in beautiful 3D, in the centre is an inventory box into which you place all the items you find, and on the right is a small map of the exits available to you. Above the main picture are the action icons which consist of EXAMINE OPEN CLOSE SPEAK OPERATE GET HIT CONSUME and a little box entitled SELF.

Let's say you want to examine a coat you see in the picture, all you do is by the use of the mouse, move the cursor over the word Examine, click, and then place it over the graphic image of the coat and click again. The object you are examining will change colour and the text will scroll down accordingly, giving you your information. If you then want to say, take the coat, then click the cursor over the coaat and while still pressing the button, move the ACTUAL coat out of the screen and into your inventory box. You now possess a coat. Similarly, if you want to move in a given direction you just click on the part of the screen you want to move to, and the picture will change. Alternatively, you can just click on the exit box which doors to go through and that will suffice.

To back up the wonderful atmosphere generated by the games are some extremely lifelike sound effects which crop up from time to time, (try flushing the loo in Deja Vu) and I can honestly say that far from turning the program into the cheap frills variety, these fx really do work for you.

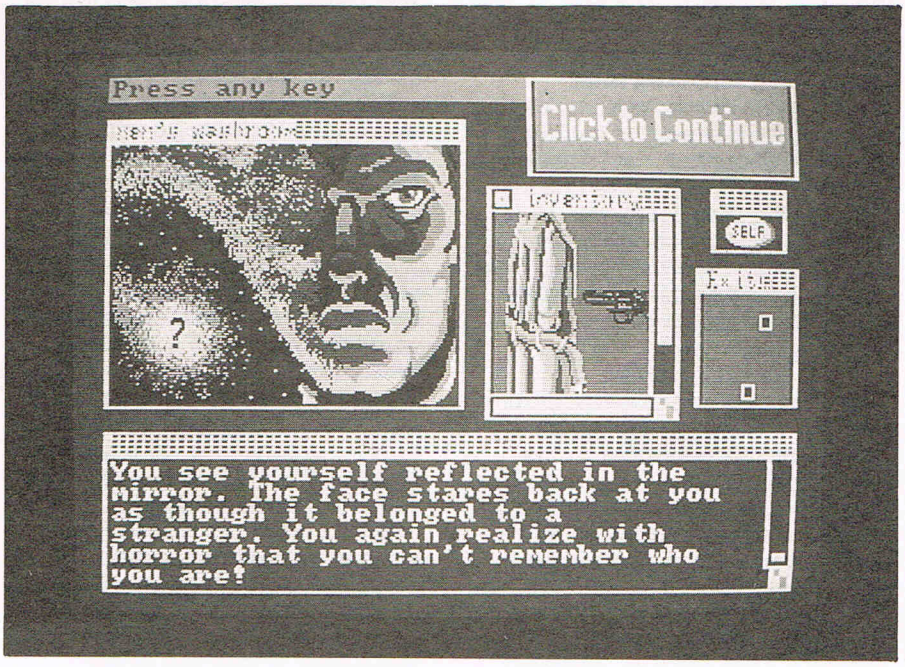
Superior to Mac

On the Amiga these games are superior to the Mac version, it's not all black and white for one thing, and the graphics are that much better, not Defender Of The Crown standard by any means but very very effective just the same.

You really have to have your wits about you, as you can examine practically everything in the pictures and something may just be hidden under something else, you just have to spot it. Some clever traps and puzzles abound with enough clues to keep you trying again and again to crack them.

Make no mistake, these are first class adventures, that while not being state of the art graphically, as far as the Amiga is concerned having a playing system that is unique and easy to use, and storylines that just cry out for someone to play them, I sincerely hope that someone will be you. These are fascinating adventures and are very highly recommended. 10/10 for Mindscape.

Deja Vu Price £29.95
Univited Price £29.95
UK Distributors Mirrorsoft,


Press any key
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SELF
You see yourself reflected in the mirror. The face stares back at you as though it belonged to a stranger. You again realize with horror that you can't remember who you are!

Reasons to add Alegra are stacking up.

■ **Bill Volk, Aegis Corporation, Vice President Software Development:**

"The Alegra is an excellent value and speeds up operations of Aegis Draw substantially. It works well with 1.2 operating systems and brings the cost of memory expansion for the Amiga in line with the cost of memory for other computers."

Alegra is the Amiga™ Memory Expansion Unit from Access Associates available in 512k (upgradeable to 2MB) and 2MB versions. With a ¾" foot-print, Alegra is *the smallest expansion package available anywhere!*

■ **Greg Riker, Electronic Arts, Manager of Technology:**

"We use Alegra and have put units in the hands of all our developers so they can develop programs using external memory. We picked Alegra because it was problem-free, and will be using it for all future development on the Amiga."

Approved by the F.C.C. for Class B operation, Alegra conforms to the Commodore/Amiga Expansion Specification and works with all popular software.

■ **Larry Studdard, Micro-Systems Software, President:**

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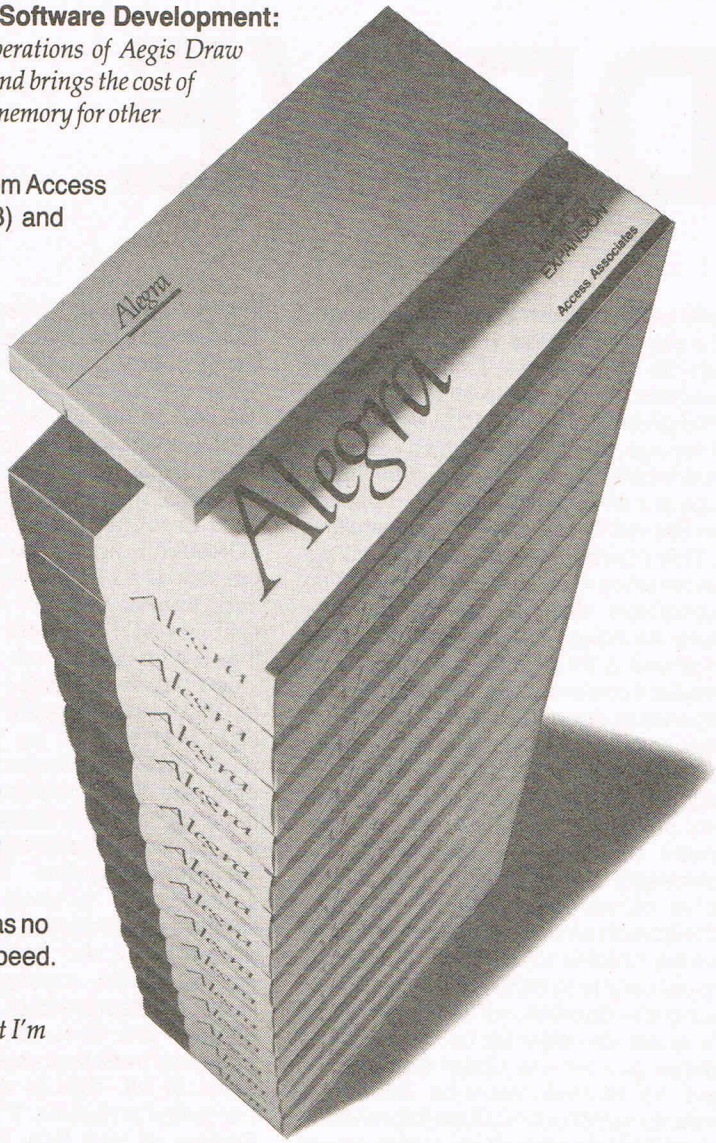

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SUPRADRIVE 4x4 HARD DISK DRIVE

I was a little dubious as to the advantages of a Hard Disk drive with a capacity of only 20 Mega Bytes. I have 240 3.5in diskettes each capable of holding up to 880K giving me a total of 211 Mega bytes of storage, 10 times that which I could fit onto a 20MB hard disk drive. Still, never to be put off by small details I unpacked the SupraDrive and set about installing it. This proved to be very simple taking me no more than about 5 minutes. The SupraDrive package comes in three parts: An Amiga bus interface, the Drive itself and a 3.5in Utilities diskette. The interface press-fits onto the Amiga's bus expansion connector then the Drive is connected to the interface via a length of ribbon cable and a multiway plug. Any memory expansion or bus devices that previously occupied the bus connector can then be attached to the interface's bus extension. The SupraDrive comes pre-formatted and with Workbench already installed so all that is then needed to complete the setting up process is to MOUNT the hard drive using the SupraMount utility provided. To make life easier for us hard done by Amiga owners the Utility diskette has had its startup-sequence batch file suitably modified to invoke SupraMount when it is first booted up. It also makes the necessary assignments to ensure that the hard drive becomes the current drive. Finally it runs a program called READCLOCK which reads a battery packed up real time clock contained in the interface and then sets the Amiga's internal clock and calendar to match. The time and date can be changed using another program called SETCLOCK. There are two remaining programs you will find on the Utilities disk. These are PARK, used to lock the SupraDrive's head prior to transit and SUPRAFORMAT which, as its name implies, is used to format the hard disk. SUPRAFORMAT, however, can not only format the disk as a whole but can sub-divide it into several smaller 'disks'. This is exactly what I did, I split my hard disk up into 5 4mb disks, each with a separate icon of its own. These I named DH0 up to DH4 with DH0 being my Workbench disk. DH1 became my 'work' disk containing a wordprocessor, spreadsheet, database and accounts package. DH2, I filled with all the utilities I frequently use i.e. backup programs, Cli extensions, Terminal programs, and anything I couldn't give a good label to. DH3 seemed a good place to put all my fun programs i.e. Art and animation programs, music packages, Video and audio digitisers and of course the odd game or two. DH4, however, was to be one of my most important and functional disks of all. This is where I put my Language programs, 'C', Assembler and Fortran. It was here that I began to appreciate the point of having a 'mere' 20Mb hard disk system. Compilations were significantly faster and disk swapping has almost become a thing of the past.

The most obvious difference you will notice when you first use the SupraDrive is the speed at which Icons and directories appear. I now find it very irritating waiting for all the icons to make an appearance when I open an 'ordinary' disk. Programs like Cli and Preferences now seem to be almost instant. One other (and not so pleasant) obvious difference is the noise level. It does make a bit of a racket. Unlike the floppy drives it is constantly whirring away sounding a bit like a jet engine from a distance. Although to be honest by the time a couple of days had passed I began to feel unsettled by the silence that ensued when I powered the Amiga off a night!

Based on the information I would consider the SupraDrive to be a good buy but there's more... (where have I heard that before?) The SupraDrive's interface can itself be used to expand your Amiga's memory using quick to fit SupraRam modules. These come in various flavours in the range 512k to 4MB. It also contains a built in SCSI port to facilitate the addition of extra Hard drives.

So what would I do with a 20MB hard disk drive? Well if it was a SupraDrive 4x4... I would treasure it!

I.B.

Price: £699.99
Contact: (UK Distributor) Precision Software Ltd., 6 Park Terrace, Worcester Park, Surrey KT4 7JZ.

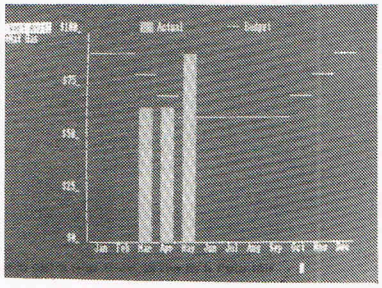
Finally News

News and Information on Products from Finally Software

The Doctor Is In

Shown above, **Dr. Xes™** is a psychotherapeutic game which uses artificial intelligence techniques and speech synthesis to converse with you on topics involving your well being and mental health. More fun than a padded cell and great for parties !

Financial Favorite

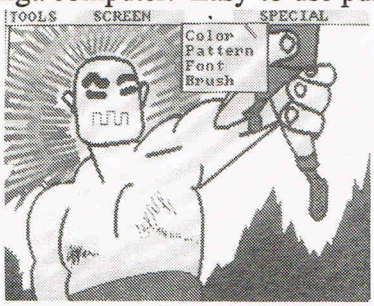


Hundreds of people across the country are using **PHASAR: The Financial Manager™** on their Amiga computers to organize their finances. Lauded as the "hands down favorite" by AmigaWorld, this program is helping people worldwide, and has rapidly become the leader in financial programs for the Amiga. It lets you sort out your finances by providing accurate tracking of multiple accounts; cash, credit, savings, payroll, deductions, medical expenses, utilities, etc. It also helps in tax preparation and prediction. PHASAR has built in intelligence which minimizes typing for quicker entry of information and transactions. It comes complete with a 100+ page manual and on-line help which shows all features and how to use them. Available now for only $99.95.

Watch for **ComicWare™**: The audio animated Comic Book series. Coming soon from Finally Software.

Graphics For Less

Finally software just announced the recent acquisition of B-Graphics™ from Rastaware. Finally will reintroduce the program as **B-Paint™**. This program lets you draw with low, medium or high resolution on any Amiga computer. Easy-to-use pull-



down menus give you tools to draw simple or complex images, and it reads, stores, and prints IFF files allowing you to use pictures created with other standard Amiga drawing programs as well. Best of all, the source code is included. At a price of only $39.95, this represents one of the best values available for the Amiga computer.

Motion Commotion

Finally software is proud to announce **AmigaMotion™**, the latest in animation software for the Amiga. This frame animation software is the first of its kind. It allows you to use sources such as B-Paint™, Deluxe Paint™, or Digiview™ to create animated sequences. Sequences can be edited then played back on your computer or stored to any VCR for feature length animation. Available now for only $99.95.

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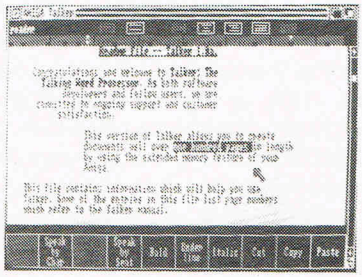


John Wagoner, President of Finally Software, conceded recently that numerous people are confused about the purpose of the **Talker™** program. "Many people don't realize that, aside from having optional speech, Talker is a full function WYSIWYG (What You See Is What You Get) word processor with bold, italic, and underline shown on-screen. It also has easy-to-use tab and margin settings as well as headers, footers and page numbering, plus more. Talker is the first word processor to take full advantage of the Amiga's special capabilities." Talker costs a mere $69.96.

Finally Software also offers **Nancy: The Spelling Checker™**. Nancy works with Talker, and other popular word processors as well as ASCII files. It has over 120,000 words in its dictionary - the largest available on the Amiga - and you can even create your own specialized dictionaries. Only $49.95.

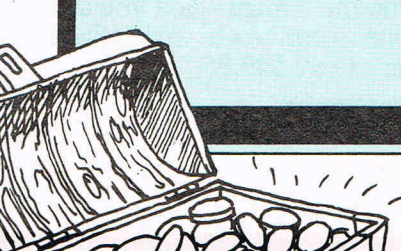
Señor Tutor, Talker, Dr. Xes, AmigaMotion, ComicWaree, and B-Paint are trademarks of Finally Software. Deluxe Paint, Digiview, Phasar, Nancy, and Amiga are trademarks of Electronic Arts, NewTek, Marksman Technology, The Computer Club, and Commodore-Amiga, respectively.

The Faery Tale Adventure

So Defender of the Crown broke the ground and Sinbad followed up. 'When you are talking Amiga games, you are talking Mindscape" we commented. "Change is the only constant in our lives . . . someone said and you can say that again!

There is now another real Amiga game to be played and you can add 'Microillusions' to Mindscape when you are talking Amiga games, too. Faery Tale has that sense of quality that only games expressly written for the Amiga show. There is no boring 'hangover from the 64' style about it. It is without doubt the next Amiga smash to make the crowds eyes widen and force out the gasps of admiration.

And it is, as 'Defender' and 'Sinbad', marvellously original and unlike anything that has gone before. It does not Defender style smack you between the eyes with spectacular graphics though they are without doubt excellent. No, it asks you to play and work hard to solve an arcade adventure of classic quality and immense preparations, of witty ideas and frustrating complexity. It is fascinating. It is undoubtedly a challenge of tremendous depth. It is one of the most interesting and entertaining games we have ever played. Faery Tale, sound, vision and story. It is a game that no Amiga player will finish quickly — or really be happy to solve at all. For Faery Tale is no good that playing it makes one realise that this is what computers like the Amiga were made for — to bring an extra dimension into game play and to keep you going for longer and longer trying to get further into its totally absorbing story. The Amiga may be a great business machine but with games like Faery Tale to play, thousands and millions more will find terrific enjoyment from it at home. You should be among them or miss out on a really terrific gameplaying experience.



Once upon a time in a land far away, their lived three young men. Brothers they were, and they lived with their father who was their tiny village's Master at Arms. Julian, the eldest, was strong and brave, and would often practice his skills as a warrior on imaginary foes. He looked forward to the near future when his father would begin training him as an apprentice swordsman.

Phillip, the second brother, could often be found exchanging sharp wit with other townsfolk, or gambling at dice, a game at which he excelled. Although not the brave warrior like his elder brother, Phillip was lucky and had his wits about him.

Kevin, the youngest brother enjoyed nothing more than a gentle stroll across the fields and surrounding countryside, where he could be at peace with the world. During his wanderings he had made friends with the animals of the country, and would feed them from the palm of his hand.

Never, had the village of Tambry for that was where they lived, ever feared the evil spirits of the land as a magic talisman with powers far greater than those of the evil ones, was kept in the village, protecting its inhabitants.

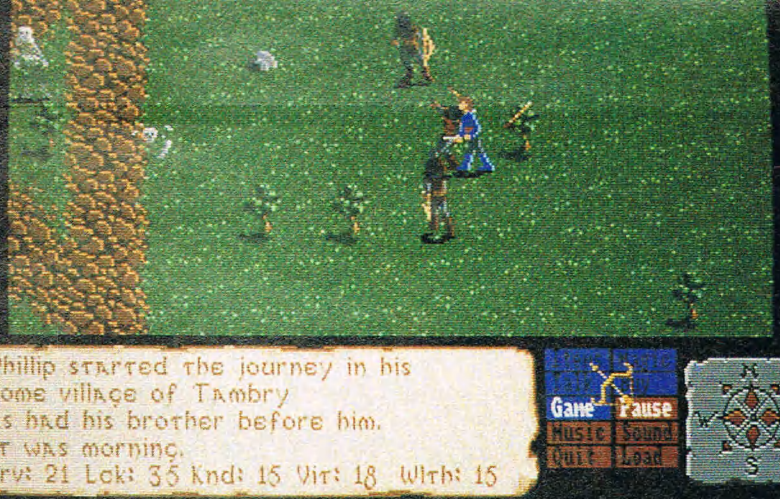
One dark night, however, some hooded figures floated into the village, followed by goblin-men and animated skeletons who danced around the village, sending a shiver down the spine of the townsfolk.

The next morning, it was discovered that the talisman had been stolen. Without this the village would be defenceless against attacks from the evil forces. Taking the part of the three brothers, it's up to you, the player to recover the talisman and restore peace to the land once more. And, of course, everybody would then live happily after . . .

The Game

On loading, the screen shows an open book with a picture of the village of Tambry. The pages then turn to show a picture of the brothers with a description of their characters. The pages are

CONTINUED FROM PAGE 99



very well drawn and shaded, giving the effect of an old parchment — or an old Hollywood movie.

Once the program has loaded, the game can start. Viewed from above at a slight angle, you begin as Julian, the eldest brother, in the village of Tambry. Control is via a mouse and an optional joystick for movement. The bottom third of the screen shows a scroll narrating the events as they happen. Next to this is a table of commands to be selected by the mouse, and on the far right is a direction icon/indicator.

Entering one of the buildings will show a plan view of the rooms, with rugs, tables, fireplaces and the like which can be searched. If you're lucky, you could find some useful objects to help you on your way. The largest building is the tavern where food, drink, and weapons can be bought if you have enough money.

Once equipped, you must set of and seek the talisman. Faery Tale comes with a map of the island of Holm showing mountains, paths, marshes, buildings and other features. Using the map is essential, as the playing area is made up of 17,000 screens. Yes, it must be said that games have boasted statistics like this in the past, but none has been so interestingly varied as Faery Tale, with its contrasting mountains, plains, rivers and forests.

Most important buildings, taverns, and keeps are linked by twisting paths that are a great help to navigation. On your travels, you will soon encounter ruthless ogres, goblin-men, skeletons, and ghostly monks who will attack you on sight. You start off with only a dirk (a small dagger) with which you will only be able to defeat the skeletons unless you are very lucky. These evil creatures will be armed with dirks, maces, swords, or bows and arrows. Fighting is done by holding down the joystick button, or right mouse button with a direction. This will result in him brandishing his weapon wildly, or firing arrows. If a foe is killed, its body may be searched, and its possessions and weapons taken. a substantial inventory can be aquired like this.

As well as nasty characters, there are good people, such as the Wizard and the beggars that will give you clues and help you in return for a good deed. For example, giving a certain beggar some gold will gain you a friend in the sea — a turtle to be more exact, who will take you to the Isle of Sorcery.

Starting as Julian, you have 20 luck points, of which five are deducted each time you are killed. If your luck runs out, the next youngest brother must take up the challenge, starting in the village with the land of Holm just as your elder brother left it. Phillip, being a lucky sort starts off with 35 luck points, and Kevin has 20.

The land of Holm is a very scenic place, with woods, mountains, rivers and general shrubbery. In contrast to this, there are the marshes, burning waste, Grimwood, and the Plain of Grief. All of the graphics are very well drawn, with well animated characters, and excellent use of colour, especially as night falls, and the landscape gradually darkens.

As you play, a suitable piece of music plays in the background which changes to a faster, more dramatic piece when you are under attack. We especially liked the piano sound in this section. When in combat, some excellent groaning, squelching and sword clashing sound effects are heard, which coupled with the realistic bloody wounds make fighting really enjoyable.

Faery Tale is an enormous adventure which will take a long time to complete and makes excellent use of the Amiga's graphics, sound, and memory.

The Faery Tale Adventure is an excellent game. It is beautifully presented and packaged, and will keep arcade adventurers (with the emphasis on adventure) happy for many, many months to come. We do not believe that there will be anyone who plays computer games who could possibly not love Faery Tale.

It is a great game!

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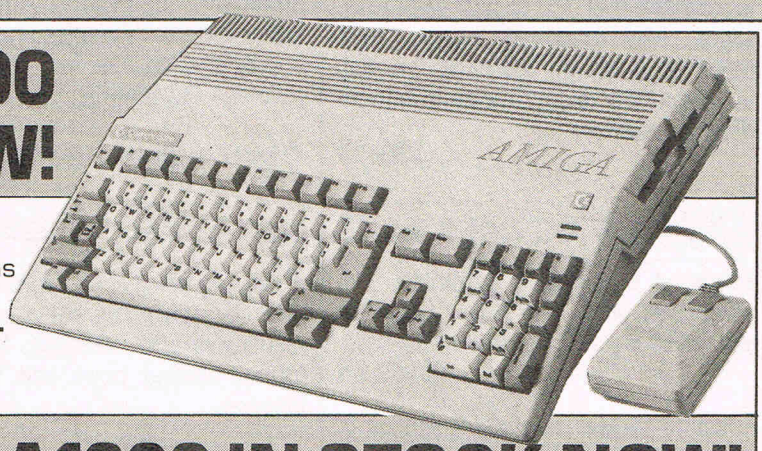

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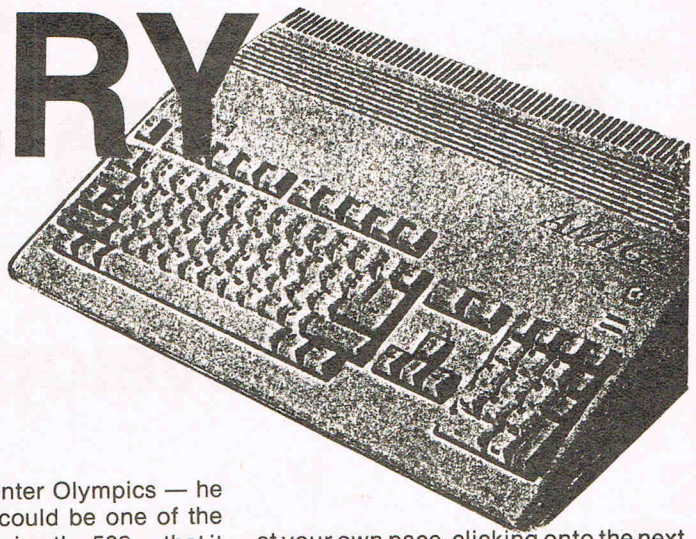
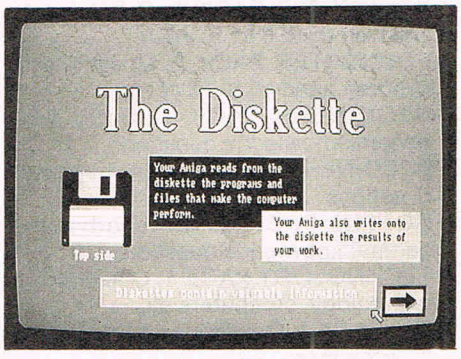


Everyone knows how to use a 64 or 128, don't they? Well, most people think they do. Yes, we know how to switch on and the basic commands that can get it up and running but sometimes, especially when we are at the beginning, we feel helplessly we don't know much more. If we do, the chances are that we learned initially from some kind of tutorial and then went on to more complicated things as we grew more experienced.

In many countries around the world, to make that first time knowledge available on opening the box, Commodore supplied a tutorial on disk or cassette for the 64 or the 128 called The Very First. Now for the Amiga 500, all over Europe, if you buy Commodore's wonder baby you will be provided with a tutorial to enable you to bring it up right and guess what this educational package is called . . . Yes, The Very First! In some other less fortunate countries you might have to buy it yourself. So we thought you would, in either case, like to know what you will be getting.


The Diskette
Your Amiga reads from the diskette the programs and files that make the computer perform.
Your Amiga also writes onto the diskette the results of your work.
Top side

The Very First tutorial has been created, for Commodore, by the same Juan Holz who was responsible for the 64 and 128 versions of The Very First tutorials. Widely experienced in things Commodore and well-known around the world — in addition to his computer expertise he represented Chile, in skiing, at the 1964 Winter Olympics — he has created what could be one of the best reasons for buying the 500 — that it will be immediately usable. For the Amiga's legenday user-friendliness is at once multiplied by the sample — practically foolproof — way The Very First presents it.

For, make no mistake, although the Amiga is genuinely user-friendly; in other words, it does not require a master's degree in computer science from the Massachusetts Institute of Technology to understand and use it successfully (some computer manuals certainly seem to!), it does have its complications and tricks, even simple ones, that will serve you well to learn — and cost you something if you don't. In The Very First, for example, one neat idea is that if you have trouble when you click on certain command, it advises you, very correctly in our experience, to try using your intuition — not the Amiga's Intuition system — and click virtually any and everywhere. That sounds pretty rough? Well, the Amiga, like all computers an occasionaly cussed beast will suddenly stop and then overcome an obstacle and work — if you give it an extra chance.

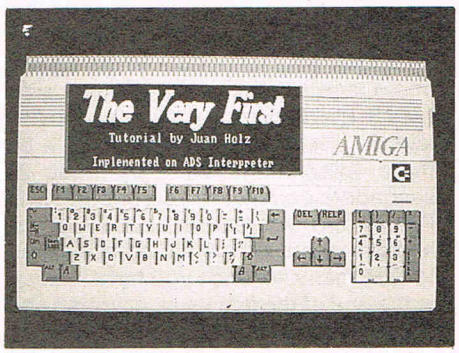
Workbench and CLI

The Very First takes into consideration that Amiga owners may well be first time computer users and even need to be told why the cursor has all at once mysteriously disappeared from the screen. We get some odd telephone calls at CCI, I can tell you. Why has the cursor disappeared? Because you may have moved the mouse too far. Solution? Move it up the table a little. (Really hard that one, Rae West, wasn't it?) It also tells you never to remove a diskette while the drive light is on. Many a floppy has gone to the great disk bin in the sky from that thoughtless action.

The Very First lets you move through at your own pace, clicking onto the next screen when you want. It has a variety of ways of going on, to stop you getting bored, including sliding screens up or down and some nice old-fashioned movie slow fades. In a few cases, it lets you go on only if you have carried out the tasks on the screen but they are not very difficult.

It covers Workbench and CLI, two of the more complex areas of the Amiga's operations, giving you the necessary information in a much simpler and immediately understandable form than any manual could do.

When it explains the Amiga's three structures or warning flashes, it uses the computer's own technology to make it clear.



For the expert programmer or the blasé longtimer user, The Very First will seem a too elementary aid but probably not too many programmers will be buying 500's anyway. The Amiga 2000 looks more their style. For the average non-technically trained Amiga 500 owner, The Very First will prove an extremely valuable help to the desired aim of sitting down and starting to use the Amiga 2 minutes after it has been delivered — which is more than has been the case with lots of computers much less powerful than the 500. **A.M.**

Trivia Trove

Enigma Developments

This is definely the one for all of us trivia fans, a thoroughly addictive game from Enigma. We are given the choice of TRIVIA TROVE or TRIVIA TROVE + which is the same game but with the answers supplied, should you get them wrong. Both versions are written in AmigaBasic.

The first level of the game consists of a Tic-Tac-Toe or noughts and crosses board. Each portion of the board is assigned a category randomly chosen by the computer and the player has to try and place his crosses in a row of three, horizontally, vertically or diagonally in order to win through to the next level. This is done by correctly answering the questions asked under the categories chosen. A correct answer also allows you the choice of the next position to play for on the board. However, if you answer incorrectly, the computer puts its nought in the square and if it gets three in a row then it wins (which it informs you with a cruel sort of laugh). Just to make things a little bit more interesting you only have 20 seconds to complete levels one and two! Points are scored for each correct answer with a bonus added according to how many seconds you have in hand at the end of the first level. A written and verbal prompt is included to tell you when it is your move. The whole game is played by means of the mouse and the left button so operation could not be simpler.

Level two is not quite as easy as level one. The board this time is made up of eight circles with four subjects which flash on and off in sequence. The idea is to stop the flashing when the subject you choose is black and then answer a question correctly. You have to select each of the four subjects in turn which becomes increasingly difficult as each subject is chosen. You are allowed one mistake only on this section so if you select a subject that has already been answered, twice, then the computer wins. You are also allowed one wrong answer on this level. I have to admit that I found this level slightly disappointing in that stopping the circles flashing at the right time seems to be very much a matter of luck rather than skill which is a pity when you do not have very much room for error. The amount of time you have to complete this level depends on how long it took you to get through the previous one.

Something Completely Different

Level three is completely different. Here you have to simply click your mouse button on one of many squares which are constantly changing colour. The colours correspond to those used in a row of numbers at the bottom of the screen. The idea is to choose a square which represents as high a number as possible because these are bonus points which are added to your score. There is no time limit on this level.

Finally you will find yourself on the fourth level of the game. Again you have to answer questions on a multiple choice basis but this time instead of the TIC-TAC-TOE board or circles you will be faced with a grid made up of squares, some of which conceal the jumbled up letters of a capital city. At the start of this frame these answers flash, so try to remember where they are. It does not matter how many of these questions you answer wrongly but you only have twenty seconds in which to complete the frame. A correct answer will entitle you to uncover one of the square and then give you the option of either guessing the capital city or postponing your guess and answering the next question. The quicker you guess the city the more bonus points you are awarded (provided you guess correctly). If you enter the wrong capital then you lose!

Having played the game seventy zillion times and eventually made it through to the end I was just a little disappointed not to be hailed as a megahero with all due musical and/or visual ceremony but this I suppose you can't have everything.

One really nice feature of this game is that it does have a section called TRIVIAL FILER which allows you to create your own questions for use within the game. This can be great fun on a Saturday night with a few friends and a liberal supply of amber nectar. On a more serious note it can also be very useful as an educational aid.

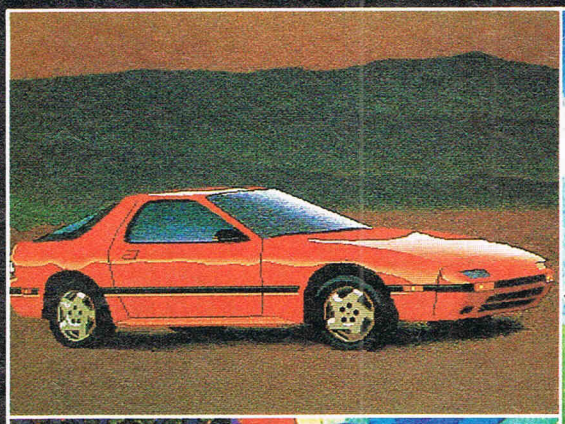
The three programs, TRIVIA TROVE, TRIVIA TROVE + and TRIVIA FILER, make up a very entertaining and educational package. With its three thousand questions I would consider it good value for money.

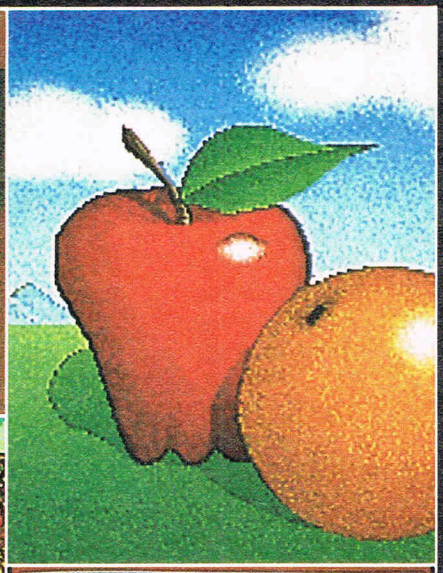
Enigma Developments hope to produce add-on data discs in the future including:

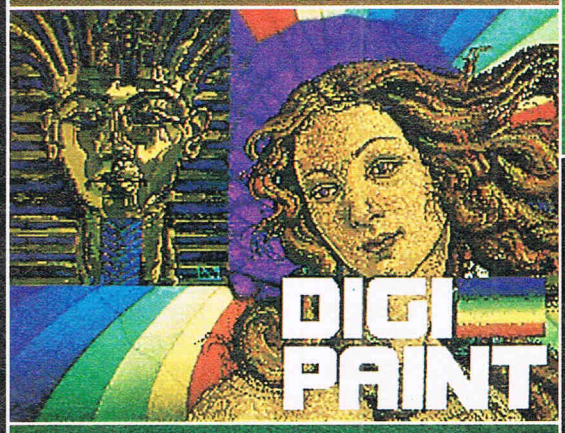
YOUNGSTER PACK 1: Questions for children aged 5 to 10 years
YOUNGSTER PACK 2: Questions for children aged 10 to 16 years
BEGINNERS PACK 1: Entry level general knowledge questions
BEGINNERS PACK 2: More beginners questions
BOFFIN PACK 1: More advanced general knowledge questions
TECHNOLOGY PACK 1: Questions on technology, computers etc.
T.V. PACK 1: Questions on various T.V. programmes
FILM PACK 1: Questions on films
O — LEVEL PACKS: Various subjects for revision.

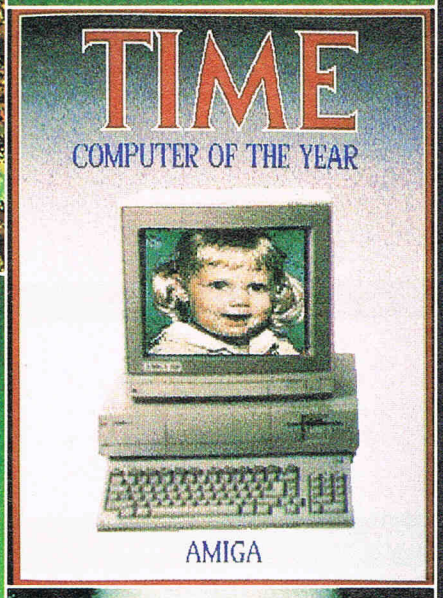
These should make TRIVIA TROVE suitable for just about everyone so watch out — you may have to fight the family for your turn!

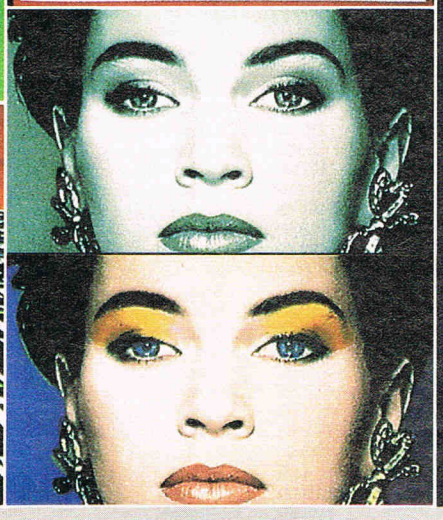
M.B.

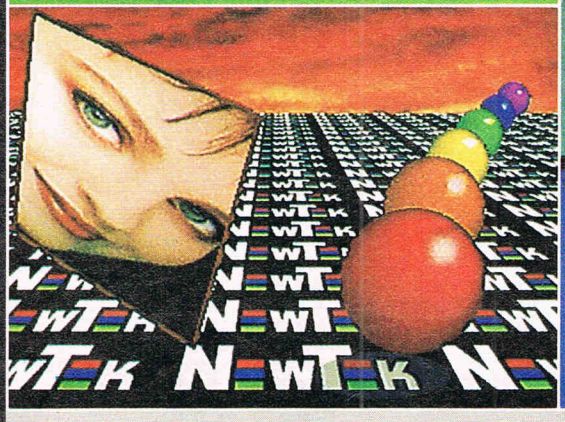












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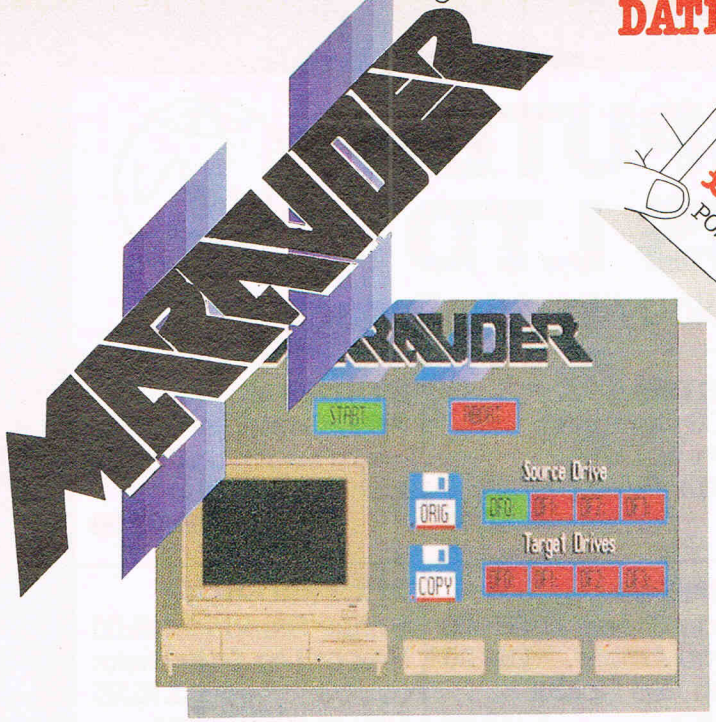

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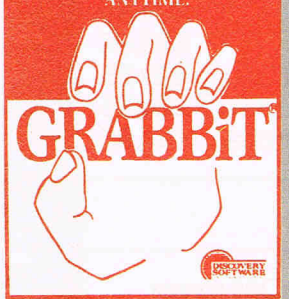

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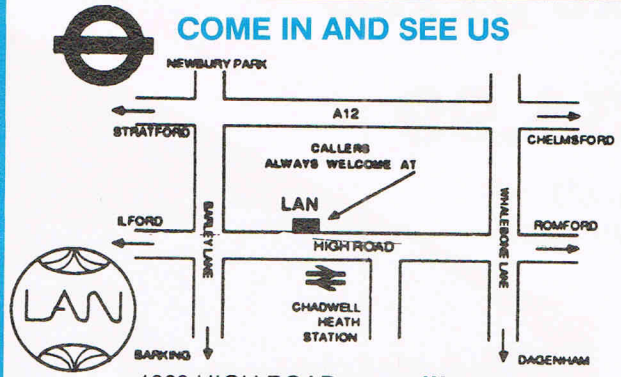

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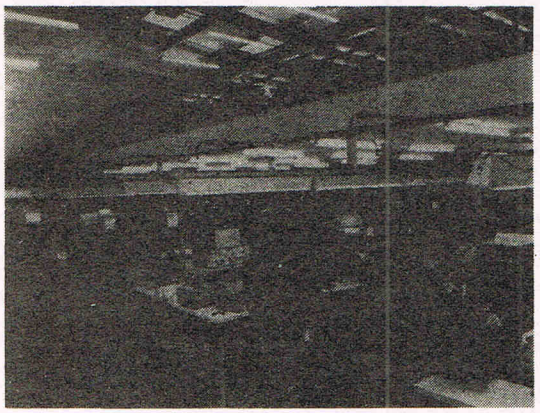

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WELCOME!

After our first article in Commodore Business & Amiga User magazine, a lot of people called us to say "What are you and what do you do?"

The UK AUG was started in July of 1986 with a handful of devoted Amiga users, who had been using a development system since November of 1985. We were so impressed by this machine that we decided to form a link with the world outside of Leicester (AUG HQ) to contact other Amiga users and developers. This was done with our bulletin board — TABBS (0533 550893 6:00pm 'til 9:00am) which is still a major function of the AUG.

Soon after that we were contacted by various users across the country with Amigas and problems! I was then decided to 'form' the AUG in October of '86.

Since that time the bulletin board has been contacted by Amiga users worldwide and our membership has grown.

The next step was to link our members and some sort of printed matter — a newsletter was born.

The first newsletter took a week to produce with many late nights and early mornings. It wasn't a strange sight to see the milkman on his rounds as we left the office!

All that hard work was rewarded by the various comments we received from members complimenting us on a tremendous achievement.

We were lucky enough to secure links with other Amiga User Groups both in the States and other parts of the world. We regularly exchange information, newsletters and public domain software with these groups.

The public domain software consists of various programs, such as the much talked about "Juggler" demo, utilities, communication software and games. These are made easily available to members of the UK AUG. and currently stands at over 80 megabytes of software.

To give our members "hands-on" experience with the latest software and hardware, we regularly hold meetings every fortnight at the Leicester HQ. This gives members an opportunity to meet each other and discuss the latest problems caused by the much heard of, never seen GURU!

Since the AUG was formed, we have produced 5 newsletters with contributions from CBM (UK), some of the leading software houses, enthusiasts and users alike.

Our membership now tops the 500 mark with many more being added each week.

In our next article we hope to pass on to you some tips we have gleaned from various sources and also to answer some of your problems.

In the meantime if you wish to contact us — please do so on either our bulletin board, or *(0533) 550993. BIX: UKAUG or COMPUNET: AUG.*

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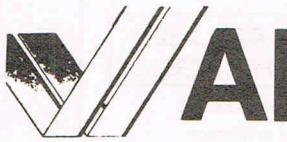

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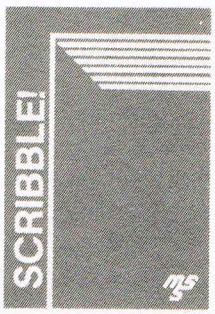

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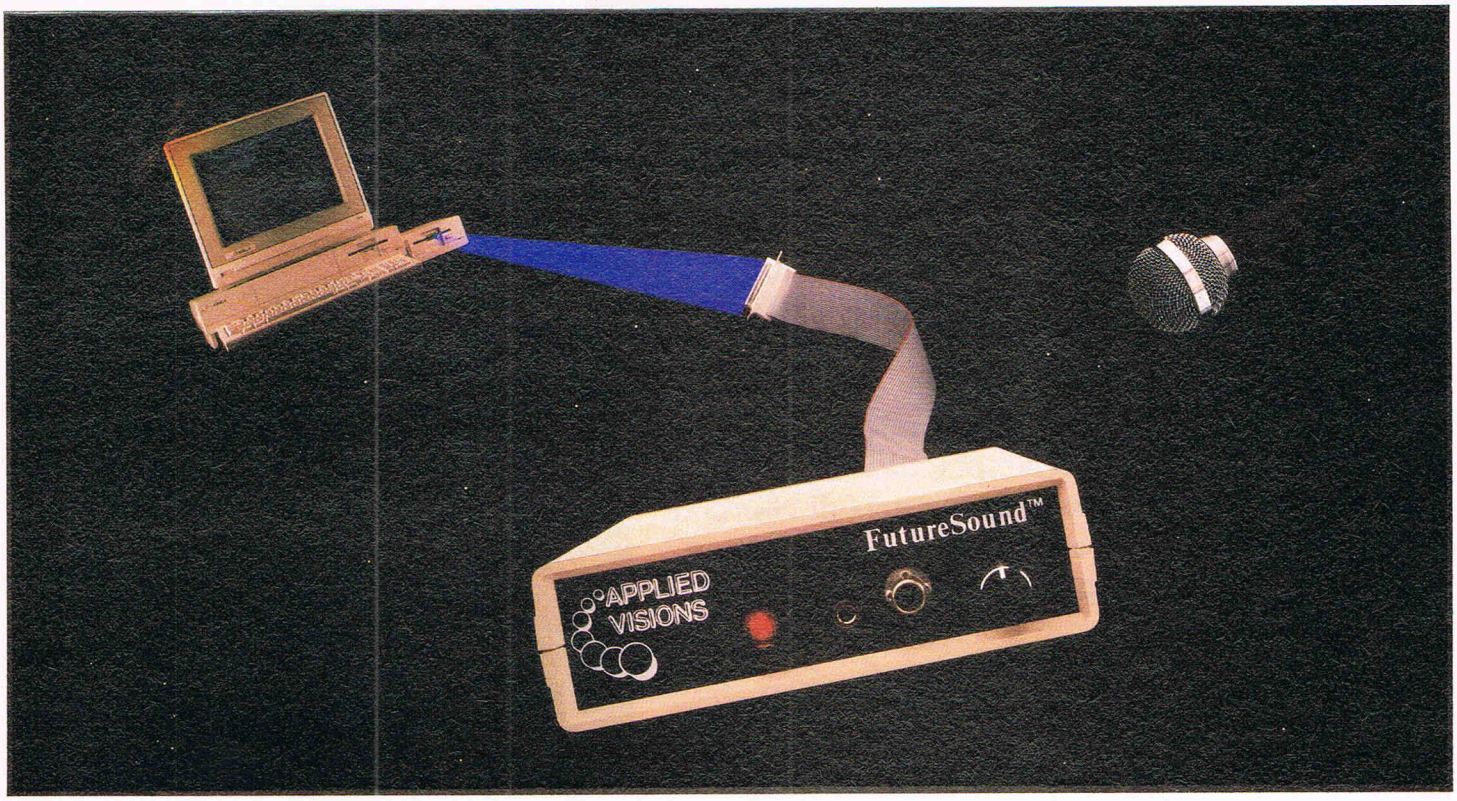

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AMIGA LETTERS

WAIT A MOMENT

When reading through various ads in your magazine for memory expansion and similar I have often comes across the term "No-wait-states" or "Zero-wait-states". What are they talking about? For all I know it could be a catastrophe not having a wait state.

Brian Lewis, Tuscon, Arizona

Memory access on most computers takes several machine cycles. If the memory of a given computer is not capable of operating at processor speed then several of the machine cycles are wait cycles during which the processor is doing nothing more productive than waiting for the memory. A memory expansion such as the Alegra uses memory capable of operating at processor speed thus eliminating delays caused by the processor waiting for memory. Hence the expressions "Zero-Waits" and "No-Waits".

WHAT A PICTURE

Is there a better icon editor than ICONED which is extremely naff?

Bernard Howell, London

Yes... Deluxe Paint! (plus a utility). First use Dpaint to design your Icon using the first four colours of the palette. Next, save it as a brush to disk. You then need to run a Public Domain program called BRUSH2ICON. This transforms the brush into a workbench usable Icon. Using Dpaint gives you a number of advantages over using ICONED:

1) *It is MUCH easier (and more fun) to use.*
2) *Icons can be whatever size you choose.*
3) *There are lots of designs already available in Dpaint (IFF) format.*

BRUSH2ICON can be found on disk 9 of the AMICUS Public Domain collection.

LOTS FOR WORDS

I am at loss when it comes to getting the SAY command working in AmigaBasic. On page 8-151 it gives an example on which I have based my program. I have thoroughly checked that what I have entered is correct and yet seem unable to get it to work. All that happens when I try to execute the program is that I get the error message "ILLEGAL FUNCTION" with the expression "SAY A$" flagged as the source of the problem. I feel sure that I have interpreted the instructions for the use of SAY and TRANSLATE correctly. Is the book wrong or am I just slowly losing my marbles?

Geoff Reeves, Burlington, USA

It seems you are victim of the 256k trap! From what I can gather if you are using AmigaBasic in a 256k machine it doesn't leave enough room for the Translate library. I suspect you will find the limitations of a 256k machine an ever increasing problem. I have discovered to my horror that even a 512k machine can become very restrictive. All I can suggest is that you upgrade your memory. If, in the meantime, you jus fancy experimenting with the SAY command you should still be able to invoke it from the CLI by typing SAY without any parameters. Close down any other programs/windows you may have running beforehand to get as much memory as possible.

FASTER AMIGA

I believe the Faster 68101 processor is pin for pin compatible with the 68000 of the Amiga. If so does it follow that by simply plugging in a 68010 I will be able to improve the performance of my Amiga?

Peter Svarsky, Newcastle-upon-Tyne

The 68010 is indeed pin-for-pin compatible with the 68000. The gain in performance, however, is unlikely to be very dramatic although programs making heavy use of looping, multiply and divide operations have been quoted as running anywhere up to 50% faster. Although hardware compatible there are a couple of differences on the software side. First, the 68010 uses a four word stack frame against the 68000's three and secondly the MOVE SR,<ea> instruction has become privileged in the 68010. Not to be deterred by such trivia a number of user groups have come up with software patches to help eliminate these problems. One such patch along with a complete information package for upgrading the Amiga can be found on the Public Domain Fish-Disk No 18.

KICK IN THE PANTS

I have at last got my hands on Kickstart and Workbench 1.2. Things were looking great until I discovered that not all of my 1.1 software would function properly. The problem is that in order to change the Kickstart version you are using you need to power off the Amiga and start from scratch. Is there any way I can tell the Amiga to RE-LOAD Kickstart without having to turn it off each time?

Frank Lekanger, Norway

There is a Public Domain program called ChangeKickStart which will reload Kickstart without having to switch off your Amiga. I don't have a copy myself but I'm sure one of our fabulous readers will be able to tell us where you can obtain a copy.

HELP IS AT HAND

Heeeeelp! I have a single drive system and I can't seem to find any way of getting a directory of anything other than the Workbench disk. If I enter DIR with any disk other than Workbench it says "Please insert Workbench Disk". If I do as instructed it then goes on to give me a directory of the Workbench disk. I have read and re-read the Amiga User Guides to no avail. It's no good telling me to go out and buy another disk drive as I could only just afford the basic system.

Chaz Collis

The solution to your problem is only a question mark away. Put in your Workbench disk and enter "DIR?" (request for help). After a few moments the message DIR,OPR/K: will appear. Then insert the disk of which you would like a directory and press RETURN. Eh Voila! one directory. Most of the other commands can also be invoked in this manner.

Letters pages edited by Ian Bennett

INTERRUPTED YET AGAIN

Musical Diversions

Continuing our great interruption on the Commodore 64 and the ultimate goal of writing an arcade game, we arrive at the all important topic of musical soundtracks. Interrupt driven of course, can't have the sound interferring with the game itself. What we have also got to consider at this stage is just precisely where we are going to place the code itself. The horizontal and vertical scrolling routines, as well as occupying space in the region $C000 to $CFFF, also take up memory lower down as well: the data for the screen displays now takes up memory from $5000 to $6FFF. A logical place to put the musical routine is somewhere in that $C000 to $CFFF spare 4K of memory, there's probably room in there after placing the scrolling routines if we look carefully enough.

The data for the music itself is another problem. Some people boast about having ten minute musical soundtracks to accompany their games, so we can't have the loyal readers of CCI falling short of those standards. Unfortunately a ten minute soundtrack takes up a reasonable amount of memory, unless you want to play notes at the rate of one every ten seconds or so. The routine I came up with allows you to play at the far more sensible rate of about three notes a second, if you want to go for the whole ten minutes and (probably) bore everybody to death.

In the end I opted for storing the music in memory from $4000 to $4EFF. This still leaves us memory in the regions $7000 to $9FFF for various nefarious purposes that will be explained in a later article, and also leaves us with about 14K of BASIC memory, for any short driver programs that we might wish to put there. Thus, at the end of the day, we have the block from $C000 to $CFFF chock full of little routines for controlling one thing and another, the region from $7000 to $9FFF for a variety of machine code routines that will not be explained in this article, $5000 to $6FFF for the scrolling screen data, $4000 to $4FFF for the music, and finally $0800 to $3FFF for any BASIC routines, loaders, driver programs or whatever that you might see fit to put there. Or, summing up:

$C000-$CFFF : MACHINE CODE CONTROL ROUTINES
$7000-$9FFF : MACHINE CODE GAME ROUTINES (what a giveaway)
$5000-$6FFF : SCROLLING SCREEN DISPLAYS
$4000-$4FFF : MUSICAL DATA
$0800-$3FFF : BASIC AREA

That is how the 64 will be organised by the time we finish this interrupt extravaganza and have a complete (well, nearly complete) arcade game. The thing will not be a finished entity, something has to be left up to you after all, that little spark of originality, that certain je ne sais quoi that distinguishes the magical from the ordinary. I'll provide the routines, you do with them as you see fit. Having got the 64 sorted out, let's take a look at a music program now, and address ourselves to the problem of how to produce interrupt driven music anyway.

Interruptions, interruptions

You should all know by now that registers 788 and 789 (or $0314 and $0315) control the flow of the hardware interrupt vector, and that by altering the content of those locations we can send the HIV off to wherever we want, as long as it gets back to its original starting place ($EA31) in the end. Looking through the 4K block of memory starting at $C000 I found a reasonable amount of space in which to store the music driver starting at $CED0. Thus we have to alter the content of locations 788 and 789 to point to that location, and this is achieved by POKE 788,208:POKE789, 206. However, doing this from BASIC is always a bit of a tricky johnnie, and so the machine code routine has a little bit of code in it which does the job for us.

Now one voice playing on its own doesn't sound particularly melodious, and so I decided to have two voices playing something vaguely musical, leaving another one free to produce any noises that might be required by the game itself. This latter will be voice one, and so voices two and three produce the soundtrack. They can also be used to prdouce bizarre noises if necessary, since the interrupt routine sorts out which note they are supposed to be playing next and adjusts accordingly if they are used to make some other kind of racket. Voice control.

Rather than having both voices playing the same thing all the time, however interesting that might be if you mess about with ring modulation and synchronisation, I opted for voice two playing the main melody while voice three plays a simple background riff, a repetitive boogie sort of thing. A simple tune, I speak as one who has been quoted as having the musical ear of a Van Gogh. Consequently the data for the two tunes is stored in different places in memory, and voice three lives from $4E000 to $4EFF while voice two lives from $4000 to $4DFF.

In theory only, however. In practise it worked out better if I didn't use up the maximum amount of space for each voice but kept a little away from it. The reason for this is simple. Voice three is playing a repetitive riff, a simple boogie thing, that repeats itself every 48 notes. It could be longer, it could repeat itself every 96 notes if you wanted, or 107 if you wanted to be perverse, but I settled on 48. Don't forget that it takes two bytes to store the data for each note to be played (low value-high value, consult those manuals), and so the amount of memory space available to us has to be divided by two in order to find out how any notes we can store. Leave two bytes free at the end of things to tell the routine that the tune has stopped and it can go back to the beginning again.

Since voice three is playing these 48 notes over and over again, it makes sense to have the main tune geared to a 48 note rhythm, otherwise everything begins to sound horribly wrong when the tunes start repeating again. Consequently, a 48 note riff should give rise to a main tune that has a multiple of 48 notes in it, 480, 940, 1536, or whatever. The 48 note tune is broken down as follows:

16 notes with C as the base note.
8 notes with F as the base note.
8 notes with C again.
8 notes with G as the base note.
8 notes with F again.
Back to the start.

So, with this sort of background riff going on it sounds a lot better if the main tune not only contains a multiple of 48 notes, but also bases itself around the sequence, C, F, C, G, F and back to C again. It sounds better.

All we need now is a routine that says a) where do I get the data for the next note from and b) where do I store it.The following is the one.

SEE DIAGRAM 'A' ON PAGE 120

Not very long, and all in one block. If you've got a disassembler you can have a look through it if you want, nothing very startling or earth shattering in the way of new ground being broken, but don't knock it: it works.

Now we need some music, and the data for this is longer than the data for the routine itself. This is because I've used the main riff of 48 notes as discussed earlier for voice three, and just to show that a large number of notes can be played before it starts repeating itself voice two has a 144 note sequence

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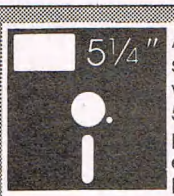

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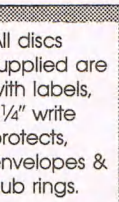

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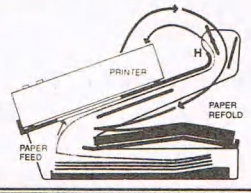

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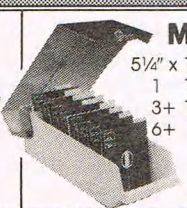

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3½" x 40
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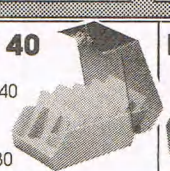

MM 80

3½" x 80
1 10.95
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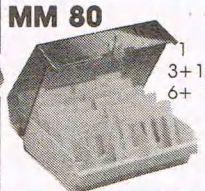

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CONTINUED FROM PAGE 118

A

```
100 B=0
102 FORI=52944TO53198
104 READA
106 POKEI,A
108 B=B+A
110 NEXTI
112 IFB<>37695THENPRINT"DATA INCORRECT-CHECK
    CAREFULLY" :END
114 PRINT"DATA ENTERED CORRECTLY.":END
200 DATA174,207,206,232,142,207,206,224,012,240
210 DATA004,076,049,234,234,162,000,142,207,206
220 DATA174,206,206,234,234,142,206,206,234,234
230 DATA234,076,128,207,234,234,234,234,234,234
240 DATA234,234,234,234,234,234,234,174,174,174
250 DATA207,172,175,207,169,000,141,011,212,169
260 DATA033,141,011,212,185,096,207,141,035,207
270 DATA141,046,207,185,097,207,141,036,207,141
280 DATA047,207,189,240,064,201,255,240,023,141
290 DATA007,212,232,189,240,064,202,141,008,212
300 DATA232,232,224,240,240,019,142,174,207,076
310 DATA049,234,162,000,142,174,207,142,175,207
320 DATA076,000,207,234,234,172,175,207,200,200
330 DATA140,175,207,162,000,142,174,207,076,049
340 DATA234,000,255,000,000,064,240,064,224,065
350 DATA208,066,192,067,176,068,160,069,144,070
360 DATA128,071,112,072,096,073,080,074,064,075
370 DATA048,076,032,077,255,255,169,000,141,018
380 DATA212,169,033,141,018,212,174,206,206,189
390 DATA000,078,201,255,240,012,141,014,212,189
400 DATA001,078,141,015,212,076,176,207,162,000
410 DATA142,206,206,076,128,207,000,232,232,142
420 DATA206,206,136,002,232,232,142,206,206,076
430 DATA000,207,169,208,141,020,003,169,206,141
440 DATA021,003,169,000,141,174,207,141,175,207
450 DATA141,206,206,096,000

READY.
```

C

```
BABY DRIVER


10 V=54272:POKEV+24,15
20 POKEV+12,11:POKEV+13,33:POKEV+19,11:POKEV+20,33
30 SYS53176

READY.
```

B

```
10 B=0:FORI=19968TO20065:READA:B=B+A:POKEI,A:NEXT
12 IFB<>6215THENPRINT"TUNE ENTERED INCORRECTLY:
   CHECK DATA     CAREFULLY.":END
14 PRINT"TUNE 1 ENTERED CORRECTLY:CHECKING TUNE 2"
16 B=0:FORI=16384TO16673:READA:B=B+A:POKEI,A:NEXT
18 IFB<>26302THENPRINT"TUNE ENTERED INCORRECTLY:
   CHECK DATA     CAREFULLY.":END
20 PRINT"ALL PRESENT AND CORRECT : WELL DONE."
200 DATA073,004,102,005,108,006,053,007,146,008
210 DATA053,007,108,006,102,005,073,004,102,005
220 DATA108,006,053,007,146,008,053,007,108,006
230 DATA102,005,185,005,053,007,146,008,159,009
240 DATA113,011,159,009,146,008,053,007,073,004
250 DATA102,005,108,006,053,007,146,008,053,007
260 DATA108,006,102,005,108,006,023,008,159,009
270 DATA205,010,216,012,205,010,159,009,023,008
280 DATA185,005,053,007,146,008,159,009,113,011
290 DATA159,009,146,008,053,007,255,255
300 DATA075,034,149,068,149,068,188,064,172,057
310 DATA097,051,075,034,172,057,097,051,198,045
320 DATA052,043,177,025,198,045,052,043,126,038
330 DATA075,034,198,045,172,057,198,045,172,057
340 DATA198,045,172,057,198,045,172,057,075,034
350 DATA052,043,075,034,052,043,075,034,052,043
360 DATA075,034,052,043,097,051,188,064,097,051
370 DATA188,064,097,051,188,064,097,051,188,064
380 DATA198,045,172,057,198,045,172,057,198,045
390 DATA172,057,198,045,172,057,126,038,126,038
400 DATA052,043,052,043,075,034,126,038,126,038
410 DATA198,045,198,045,097,051,097,051,052,043
420 DATA198,045,198,045,126,038,126,038,097,051
430 DATA097,051,172,057,172,057,198,045,097,051
440 DATA097,051,188,064,126,038,126,038,052,043
450 DATA052,043,075,034,126,038,126,038,198,045
460 DATA172,057,172,057,188,064,188,064,097,051
470 DATA172,057,172,057,149,068,097,051,097,051
480 DATA172,057,172,057,198,045,097,051,097,051
490 DATA188,064,126,038,126,038,052,043,052,043
500 DATA075,034,075,034,037,017,037,017,177,025
510 DATA177,025,227,022,227,022,154,021,154,021
520 DATA063,019,063,019,097,051,097,051,172,057
530 DATA172,057,198,045,198,045,227,022,075,034
540 DATA126,038,126,038,052,043,052,043,075,034
550 DATA075,034,037,017,177,025,172,057,172,057
560 DATA188,064,188,064,097,051,097,051,177,025
570 DATA126,038,097,051,097,051,172,057,172,057
580 DATA198,045,198,045,227,022,075,034,255,255

READY.
```

to get through. It could have been longer of course (the demo program for the rapidly-becoming-famous John Ryan, who started all this off in the first place, contained 1728 notes), but somehow I couldn't see you typing in thousands and thousands of bytes of data. *SEE DIAGRAM 'B' ABOVE*

Two blocks of data this time, one for each voice of course, and as you will see o e is considerably longer than the other. Note (sorry) the values 255 stored at the end of each block. These tell the routine to stop looking for any more notes and go back to the start of the tune again. Vital, otherwise all sorts of discordant happenings will begin.

Finally we need a short BASIC driver that sets up a few parameters and gets the whole thing rolling.

SEE DIAGRAM 'C' ABOVE

On a short program, to set the volume to maximum and also set the ADSR settings for voices two and three. Could have been done quite easily in machine code of course, but if you're not a machine code person you might as well have something to type in that makes a bit of sense. The SYS53176 by the way is the call to the routine to alter the content of memory locations 788 and 789.

So, to get the whole thing working, enter and save the three programs before doing anything else. Load and Run the 'Music Interrupt Loader' program first, followed by the 'Tune' one, then finish off with the 'Baby Driver' one. Provided that you've got the volume turned up on your TV set you'll be able to hear what's going on.

Fiddling

As I've said before the great virtue of BASIC loaders is that they can be used without really knowing how the program operates. For this particular program all you need to do are store the musical notse in the appropriate place in memory as the 'Music Interrupt Loader' program does, in the traditional low value-high value for each note (found in the manual accompanying the 64, one of the few useful things in it), and remember to stick to multiples of however many notes the repetitive riff might contain, before putting two 255s at the end to round it all off.

Now then, you might wish to alter the speed in which everything is played. POKE 52952,SP does this, with SP currently set to 12. You might not like the wavelengths I've chosen for voices two and three. POKE 53004,W2 and POKE 53126,W3 respectively to alter those.

And that's about it. We're nearly at the end of this foray into interruptions. All that remains ('all', he says) is to round everything up and provide one or two routines that could be used in a finished arcade game. Not quite finished, of course, but nearly. Close enough for you to polish the rest off yourself, anyway. For those, however, John D. Ryan and the rest of the world can wait until the next article. Bye for now.

PG

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ACTION REPLAY MK III SAVED WITH WARP • 25	9.8 SECS	THREE	NO
FREEZE FRAME (MK IV)	40 SECS	TWO OR THREE	NO
FREEZE FRAME (LAZER)	25 SECS	TWO	YES
EXPERT SYSTEM	30 SECS	THREE	NO

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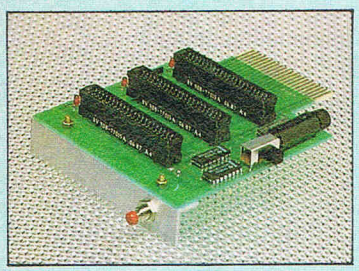

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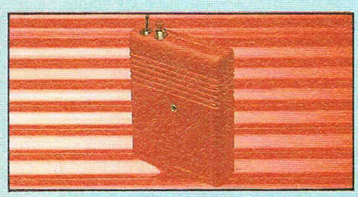

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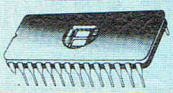

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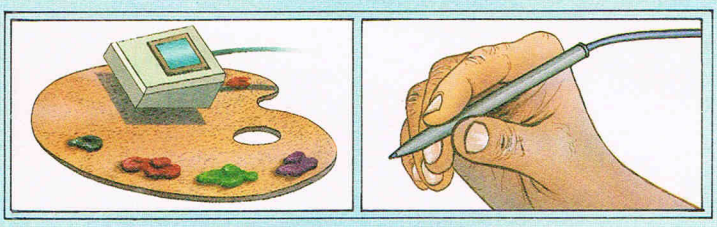

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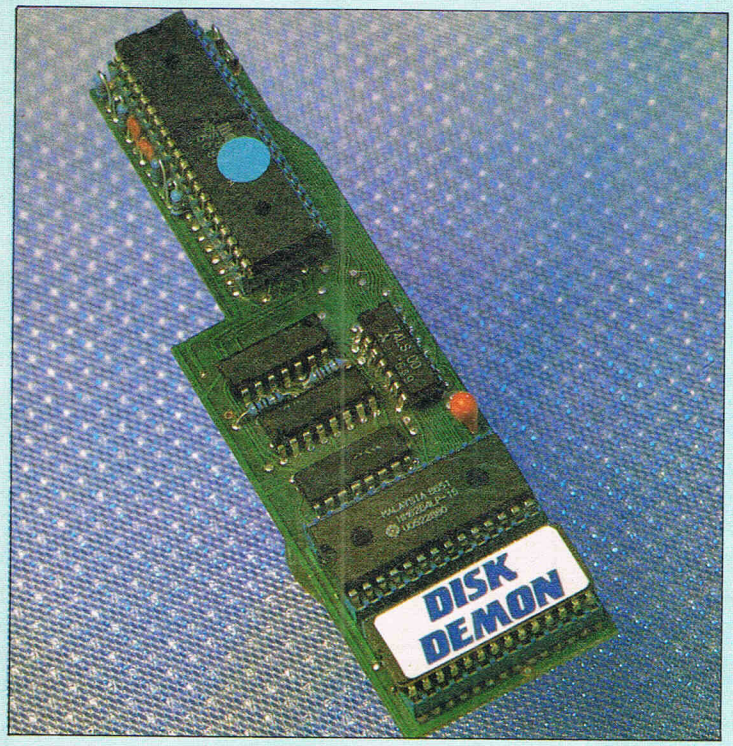

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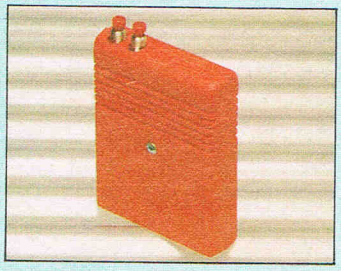

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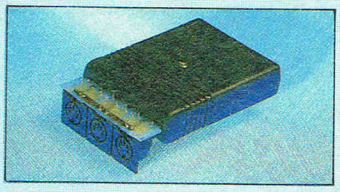

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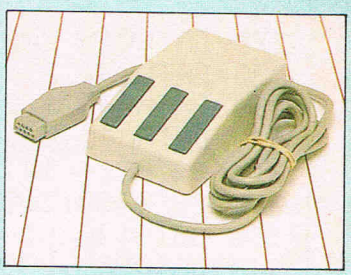

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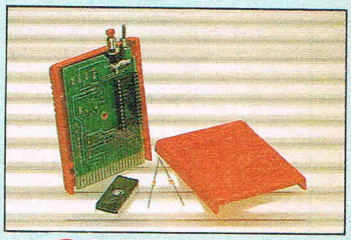

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```
270 DATA015,208,245,224,000,208,067,234,234,234
280 DATA234,234,076,073,198,174,032,197,189,032
290 DATA093,172,034,197,153,012,004,200,192,015
300 DATA240,026,140,034,197,172,035,197,185,160
310 DATA204,141,057,198,185,161,204,141,058,198
320 DATA200,200,140,035,197,076,053,198,160,000
330 DATA140,034,197,140,035,197,076,240,197,000
340 DATA255,000,255,000,142,037,197,140,038,197
350 DATA162,002,160,240,200,192,255,208,251,202
360 DATA224,255,208,244,174,037,197,172,038,197
370 DATA076,002,198,255
400 DATA174,032,197,224,255,208,001,096,162,214
410 DATA142,032,197,234,234,234,174,032,197,202
420 DATA142,032,197,224,255,208,021,096,000,255
430 DATA000,255,000,255,000,255,000,255,000,255
440 DATA000,255,000,255,000,255,000,255,162,000
450 DATA189,162,203,141,031,199,189,163,203,141
460 DATA032,199,189,160,203,141,034,199,189,161
470 DATA203,141,035,199,232,232,160,000,185,204
480 DATA007,153,164,007,200,192,015,208,245,224
490 DATA048,208,067,174,032,197,172,034,197,185
500 DATA160,204,141,064,199,185,161,204,141,065
510 DATA199,189,032,093,172,035,197,153,204,007
520 DATA200,140,035,197,192,015,240,011,172,034
530 DATA197,200,200,140,034,197,076,048,199,160
540 DATA000,140,034,197,140,035,197,076,224,198
550 DATA255,000,255,000,255,000,255,000,255,000
560 DATA142,037,197,140,038,197,162,002,160,240
570 DATA200,192,255,208,251,202,224,255,208,244
580 DATA174,037,197,172,038,197,076,002,199,255
600 DATA012,004,052,004,092,004,132,004,172,004
610 DATA212,004,252,004,036,005,076,005,116,005
620 DATA156,005,196,005,236,005,020,006,060,006
630 DATA100,006,140,006,180,006,220,006,004,007
640 DATA044,007,084,007,124,007,164,007,204,007
650 DATA204,007,000,255,000,255
700 DATA000,080,240,080,224,081,208,082,192,083
710 DATA176,084,160,085,144,086,128,087,112,088
720 DATA096,089,080,090,064,091,048,092,032,093
730 DATA000,255

READY.
```

DRAWING UP

```
1 PRINT"[CLR]";
2 STOP
4 FORI=0TO24
5 FORJ=0TO14
6 A=PEEK(1024+I*40+J)
7 POKE20719+J*240-I-K*25,A
8 NEXTJ,I
9 K=K+1:GOTO1

READY.
```

CONVERTING SCREENS

```
10 REM CONVERTER
20 FORI=0TO14
30 FORJ=0TO239
40 A=PEEK(24576+J+I*240)
50 POKE (20480+J+I*240),A
60 NEXT J,I

READY.
```

SUPER-G

Supra Corporation

It can be very distressing watching the owner of a Commodore printer ripping his hair out and muttering the unprintable every time someone mentions that the letters he has just printed out using his £99.00 wordprocessor look odd! Why do they look so strange? The answer lies in the construction of the individual characters. They don't have true descenders. In other words the lower portions of the letters like q, y, p, g, j, that normally fall below the writing line... DON'T. The problems don't finish there. Commodore printers tend to be slow, have few of the features found on the more popular printers and their print quality often leaves a lot to be desired. So what's the answer? Don't buy a Commodore printer! With the price of printers coming down on an almost weekly basis it is possible to pick up an NLQ (Near Letter Quality) printer with every feature imaginable from as little as £150.00. There is, however, a snag. Most printers use the Centronics type interface with which to attach to computers and as we all know Commodore computer are somewhat lacking in the Centronics area. This is where SUPER-G fits in (I did wonder? Ed). It is a parallel printer interface that will enable a Centronics compatible printer to work with a lead coming out of each end. One lead plugs into the Serial port on the computer and one into the printer. There is also a single red wire with a small connector which fits into the cassette port. The cassette port can still be used as the connector incorporates a passthru facility. There is a small recess on one side continuing a bank of eight dip switches. These are used to setup the interface for whatever type of printer you are using.

Split personality

Once set up, the SUPER-G will convince your printer that it is a Commodore 1525. This means that it will work with any software that makes use of a printer including screen dumps etc. but the print quality will be that of the better printer. Another area where it helps improve output is when it comes to printing listings. SUPER-G does this by substituting those curious graphic symbols you've all grown to hate with letters within braces, i.e. The SHIFT + CLEAR/HOME combination will be printed as (CLR) and not a reversed heart. The code for Light blue will no longer appear as a reversed diamond but as (LBLU). Simple eh? All the normal graphics remain unchanged. If the software package you are using is able to access your particular printer's special features then it is possible to turn off the 1525 emulation mode by means of one of the dip switches or via a simple software command. In fact all the dip switches can be over ridden from within software control.

Cure for baldness

So as you can see it's no longer a case of 'Commodore computer + Commodore printer = baldness + overflowing swear box' but 'Commodore computer + any printer + SUPER-G = heaven!'

I.B.

ICPUG is a highly influential organisation and brings many benefits to its members across the whole range of Commodore activity. CCI considered that a regular column from ICPUG would be of interest to many readers. The views expressed by ICPUG may not be those of CCI

Memory Manipulation by Logical Operators

— Joe Bowman

The logical operators "AND" and "OR", when used for Bit Masking and Manipulation, are probably the least understood aspects of programming but potentially the most useful. If you wish to inspect or change a particular memory location, you can, of course, use PEEK or POKE. However, how would you test the setting of bit 0 or set bit 7 without changing the settings of any of the other bits? This problem arises because PEEK and POKE operate on the complete 8 bits of a byte and ther are no BASIC commands to inspect or set single bits. This is where the logical operators can be used for Bit Masking or Manipulation. To do this it is first necessary to understand the result of ANDing or ORing two bits (Binary Digits):

```
        1 1 0 0   1 0 1 0
AND     1 0 1 0   1 0 1 0
        ---------------
=       1 0 0 0   1 0 1 0
```

It can be seen from the above examples that by using AND to combine two binary numbers the only time a 1 is produced in the answer is where there was a 1 in the same position in both the original numbers.
Therefore:

```
        10111001  00111000
AND     10000000  10000000
        ---------------
=       10000000  00000000
```

It can be seen that if bit 7 was a 1, ANDing the number with binary 1000000 results in a number greater than 0 and if bit 7 was 0 then the result is 0. This can be used in BASIC to test for the value of bit 7 as follows:

```
10 A = PEEK(0)
20 B = A AND 128
30 IF B>0 THEN PRINT "Bit 7 was set at 1"
40 If B = 0 THEN PRINT "Bit 7 was set at 0"
```

To test for other bits, alter line 20 accordingly; eg for bit 1 change the 128 to a 1.

To set one bit without affecting the others you use the OR command:

```
        10111001  10110000
OR      00000001  00000001
        ---------------
        10111001  10110001
```

The BASIC program to set bit 0 to a 1 is:

```
10 POKE(0), (PEEK(0) OR 1)
```

To set bit 7 to a 1:

```
10 POKE (0), (PEEK(0) OR 128)
```

It you want to clear bit 1 to a 0, you need to AND all the other bits with 1:

```
        10111001
AND     11111110
        --------
        10111000
```

In BASIC:

```
10 POKE(0), (PEEK(0) AND 254)
```

You can, of course, use these routines to inspect or alter any bit of any location just by changing the locations and/or values used. You can therefore wield a fine scalpel instead of the bludgeoning of PEEK and POKE.

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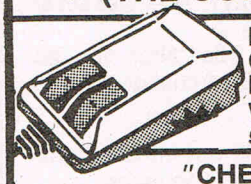

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THE PERFECT PROTECTION

Dear CCI,

This is the second time I have written to you on this subject but after the bawling-out you gave to that 'pompous little twit' (your words, not mine), perhaps I had better not say too much about your not including my letter. Although I was not really trying to be interesting, merely seeking information. I'll try again since the matter is important to me.

In your March edition you printed a program called "The Perfect Protection" by Dennis Zweytzer. It seemed such a useful proggy that I spent days typing it in and then sorting out the inevitable knot of typing errors which were bound to arise from such a long, l-o-n-g list of data statements. Eventually I got it up and running to the point where it prints out the line "TO START: SYS 49494". However, when this memory location is typed in, the computer locks up.

Now, in his description, Mr Zweytzer mentions that his program ". . . asks for the name of the program you wish to protect then loans it." I suppose that all this print instruction is included in the data since it is not in evidence in any straight 'Print' instruction. Or could it be that the program, as printed in your mag. is not complete? Do please help. Others are probably as frustrated by this as I.

Finally, sir, since it inevitably takes so long to get a program query such as this answered, might I sugget that you set up a Program Query Hotline?

Yours faithfully,

J. C. McKillop, Glasgow.

Don't be nervous, J. C. McKillop. We only take it out on those who deserve. So we asked Ian (kind-hearted) Bennett to look into your query. Answer below. As for a Program Query Hotline, during the early days of CCI we used to have one which dealt with literally hundreds of enquiries. In fact it became so time consuming that it was creating difficulties for the magazine. So we discontinued it. If you have technical prolems we are glad to be able to help if it will interest other readers. For individual help though, the best place is experts like ICPUG or Commodore's own technical department.

```
0 DIM A(1665):FOR X = 1 TO 1665:READ A(X):NEXT
1 FOR L = 1 TO 15:T=
2 FOR X = L TO 1665 STEP 15
3 T=T+(A(X)) :NEXT:PRINT L,T:NEXT
4 :
5 :
10 L=49152
20 FOR X=0 TO 110:T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT1000+(X*10) "OK":NEXT
80 PRINT CHR$(147)" TO START : SYS 49494 "
1000 DATA 001,009,117,018,000,032,000,207,113,061,004,004,006,002,004, 066
1010 DATA 002,078,078,173,002,192,056,233,063,133,045,173,003,192,233, 120
1020 DATA 000,133,046,076,160,192,000,000,000,000,000,000,000,000,000, 095
1030 DATA 000,000,000,004,004,004,004,004,004,004,004,004,004,004,004, 048
```

```
      1    2    3    4    5    6    7    8    9    10    11    12    13    14    15
```

```
READY.

1      12792
2      14516
3      15032
4      15023
5      13775
6      14438
7      15223
8      13459
9      13829
10     14868
11     13505
12     15295
13     13138
14     14488
15     14182
```

Dear John,

I'm sorry to have to break it to you but the problem is in your program and not the listing. However, to help you find the wretched bug I have written a few lines of code for you to add to the beginning of the listing to help you find the error(s). The extra lines will read the date into an array and then add up the data but in columns and not rows. The reason why this may help is that the error checking routine incorporated in the program as it stands just adds up each row. It is possible that you may have entered TWO data statements incorrectly but that their total is still the same. i.e. 173, 103 instead of 103, 173 or 245, 009 instead of 254, 000. By adding them up in columns instead of rows will prevent the same problem from occurring again. Once you have run the program with the new routine attached it will print out the totals of each column. I have run the same test on the master program and printed out my results. If my guess is correct you will find that 1 or more totals will not tally up with mine. All you need to do then is just check the column(s) in question. I hope that helps. I see from your letter that this is your second letter. Well all I can say is that we didn't get your first one. All program problems go into a special file which I am sent every Monday morning. Each letter is date stamped and given a unique reference number to ensure that it does not ge lost in the system. So let's put this one down to Postman Pat eh?

Ian Bennett

Inside Info

COMPUNET – A snapshot

Compunet is a networked database for Commodore 64/128 owners. It was set up two and a half years ago and has become a rich source of information, software and contacts with similarly minded users. A short overview of some of the more popular areas will give some idea of the breadth of the activity on the service.

The 'Demo' area, in which programmers can upload demonstrations of their programming skills, is possibly the most successful of late. Other users can download these demo programs and vote on them. A typical demo might consist of a high resolution screen, with an extensive sound-track and a message and 'hellos' scrolling past in the screen border — the standard is very high and a number of programmers have been 'discovered' by the software houses in this area.

The 'Demo' area has recently spawned a new one, 'Show Biz' which is intended as a contact point between software houses and programmers. Many software houses sell their products through Compunet too. Games and serious software, such as sophisticated terminal emulators can be bought and downloaded at very reasonable prices compared with those in the high street. There is also a large amount of free public domain software available on the database, much of which is of the highest standards.

The 'Jungle' is an area where anyone can upload anything they have produced and believe suitable for public consumption. Here views can be inflicted on other Compunetters, user's software can be bought and sold, or distributed free, and news can be passed on — really the area is only limited by the user's imaginations.

'Arena' is an area where various contentious subjects are discussed, anyone can upload their views and the result is often thought-provoking. A number of subjects such as 'Aids Education', 'South Africa' and 'Women in Computing' are currently under discussion while new conferences can easily be added.

For those who want to make real-time contact with other users there is 'Partyline', which might be described as a CB simulator. While electronic mail can be sent to other users using the 'Courier' service, which is infinetely more efficient than the GPO's 'Snail Mail'. another form of contact between users is through MUD, the Multi-User Dungeon. As MUD is well covered in other parts of CCI we won't dwell on it here.

Many special interest groups have areas on Compunet. The biggest is probably that of ICPUG, The biggest is probably that of ICPUG, the 'Independent Commodore Products User Group' which has most of its Public Domain software and many interesting articles available for free downloading. The Amiga User Group also has its own area, which provides up to date new about Commodore's latest machines.

'Wino', the sysop of the HomeView BBS, has deserted from Prestel and runs an excellent and very informative Communications News area. Essential reading for those interested in getting the most out of their Modems.

The above only scratches the surface of what's available. There are many other areas offering information, entertainment and software, many with esoteric names such as 'Dr. Fogg's Spot', the 'Mighty Bogg's Area' and the 'Vicar's Train Set'. Next month we will look at how to access and use Compunet, as well as some news about its imminent move to a new host computer.

J.M.L.

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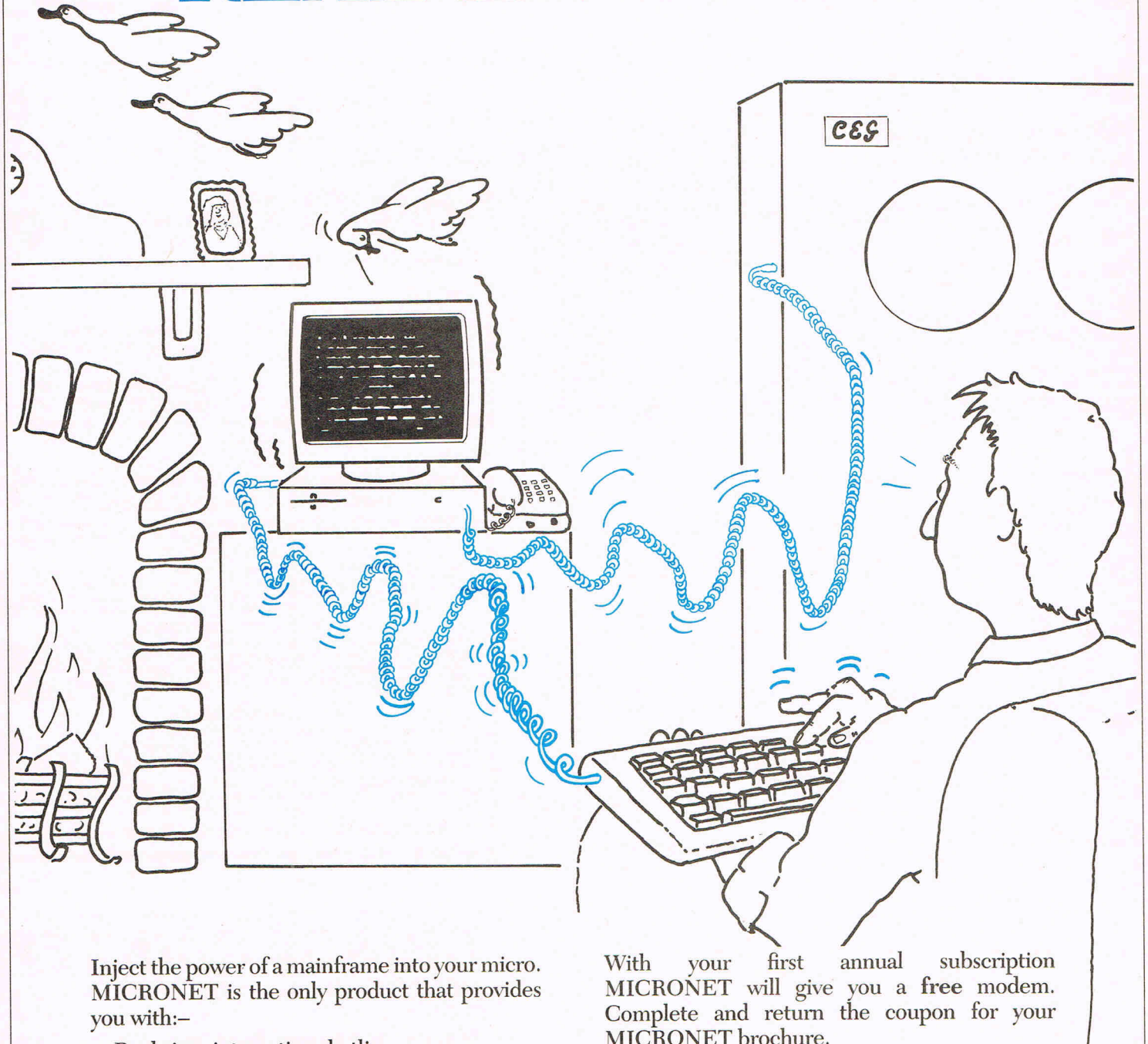

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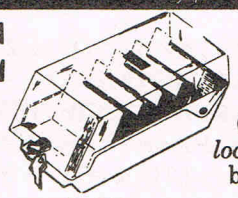

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by Mike Fulton

Commodore 64

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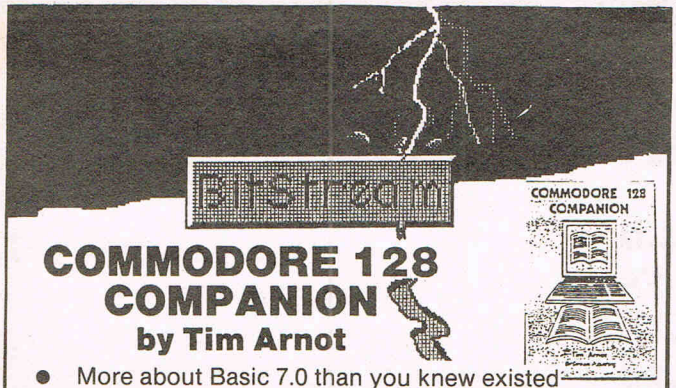
```
10 AS=0:A$="0123456789ABCDEF":HX$="":OPEN4,4:GOSUB230
   :INPUT"CHARS/LINE";CHAR
20 GOSUB230:INPUT"START ADDRESS (HEX) ";IN$:L=LEN(IN$):M=16↑L
   :GOSUB170:SR=Y:Y=0
30 GOSUB230:INPUT"END ADDRESS (HEX) ";IN$:L=LEN(IN$):M=16↑L

40 GOSUB230:INPUT"(H)EX  (A)SCII  OR  (J)OINT";AS$:IFAS$="J"THENAS=1
50 IFAS$="A"THENAS=-1
60 IFSR>ENOREN>65535THENRUN
70 GOSUB230:PRINTTAB(13);CHR$(158);"OK - PRINTING"
80 CHAR=INT((CHAR-6)/(AS+3))-2:CNT=SR:FORA=1TO((EN-SR)/CHAR)+1
90 L=4:D=256↑(L/2):TCN=CNT:HX$="":GOSUB190:PRINT#4,HX$+"; ";
    :FORNT=0TOCHAR-1
100 HX$="":IFNT+CNT>65535THENCLOSE4:END
110 TCN=PEEK(NT+CNT):IFAS<>-1THENL=2:D=256:GOSUB190:GOTO130
120 HX$=CHR$(TCN):IFTCN<32ORTCN>95THENHX$=CHR$(46)
130 PRINT#4,HX$+" ";:HX$="":NEXTNT:IFAS=1THENGOSUB210
140 PRINT#4,CHR$(13);:CNT=CNT+CHAR:NEXTA:CLOSE4
150 GOSUB250:PRINTTAB(12);CHR$(155);:INPUT"ANOTHER OUTPUT";A$
    :IFA$="Y"THENRUN
160 END
170 FORN=1TOL:M=M/16:B=ASC(MID$(IN$,N,1)):IFB<58THENY=Y+((B-48)*M)
    :NEXT:RETURN
180 Y=Y+((B-55)*M):NEXT:RETURN
190 FORX=1TOL-1:D=D/16:H(X)=INT(TCN/D):TCN=TCN-(H(X)*D):NEXT:H(X)=TCN
200 FORX=1TOL:HX$=HX$+MID$(A$,H(X)+1,1):NEXT:RETURN
210 PRINT#4,CHR$(59);:FORJ=1TONT:CA=PEEK(CNT+J):IFCA<32ORCA>95THENCA=46
220 PRINT#4,CHR$(CA);:NEXT:RETURN
230 POKE53280,5:POKE53281,5:FORT=1TO6:READS:PRINTCHR$(S);:NEXT:RESTORE
240 PRINTCHR$(5);:PRINTTAB(8);"PLEASE REPLY TO PROMPTS":PRINTCHR$(31)
250 FORT=1TO5:PRINTCHR$(17);CHR$(29);:NEXT:RETURN
260 DATA147,5,17,17,17,17
```



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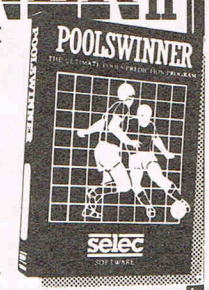

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Interrupted Again — and Again

These are the listings that should have accompanied Peter Gerrard's article in the June Issue of C.C.I. Gremlins (no not the games house but the vicious kind) caused them to be omitted.

For the many readers interested — our humble apologies.

```
1 REM BASIC SPRITE MOVEMENT
2 REM LISTING NO 1        4/3/87   PG
3 :
4 POKE 53281,5:POKE 53280,0:S=54272:POKES+24,15
5 PRINT"[CLR,BLK]"TAB(15)"THE WINKER!"
6 PRINT "[HOME,CD]";
7 POKE S+4,0:POKE S+5,9:POKE S+6,0
8 PRINTTAB(9)"[BLK,SP,20CBMP]"
9 FORJ=1TO20:PRINTTAB(9)"[BLK,CBMN,RVS,WHT,20SP,OFF,BLK,CBMH]":NEXTJ
10 PRINTTAB(9)"[BLK,SP,20CBMV]"
12 T=2:GOSUB 62000:A=248:POKE V+21,255:X=172:Y=136:POKE V,X:POKE V+1,Y
15 POKE 198,0:POKE 650,255
19 A$="M"
20 REM
22 IFA$="M"THEN100:REM MOVE DOWN
24 IFA$="I"THEN120:REM MOVE UP
26 IFA$="A"THEN140:REM MOVE LEFT
28 IFA$="D"THEN160:REM MOVE RIGHT
30 GOSUB200:GOTO19:REM ANY OTHER KEY PRESSED
100 IFY<210THENY=Y+3:POKEV+1,Y:GOSUB200
102 IFY>=210THENA$="I":GOSUB300:GOTO24
104 GETA$:IFA$=""THEN100
106 GOTO20
120 IFY>64THENY=Y-3:POKEV+1,Y:GOSUB200
122 IFY<=64THENA$="M":GOSUB300:GOTO22
124 GETA$:IFA$=""THEN120
126 GOTO20
140 IFX>105THENX=X-3:POKEV,X:GOSUB200
142 IFX<=105THENA$="D":GOSUB300:GOTO28
144 GETA$:IFA$=""THEN140
146 GOTO20
160 IFX<240THENX=X+3:POKEV,X:GOSUB200
162 IFX>=240THENA$="A":GOSUB300:GOTO26
164 GETA$:IFA$=""THEN160
166 GOTO20
200 REM ROTATE SPRITE
202 A=497-A:POKE 2040,A
204 RETURN
300 POKE S+4,0:POKE S+4,129:Z=INT((X+Y)/20):POKES,Z:POKES+1,Z:RETURN
62000 V=53248
62005 B(0)=248:B(1)=249:B(2)=250:B(3)=251:B(4)=252:B(5)=253:B(6)=254
      :B(7)=255
62010 NS=T:IFNS=0THENRETURN
```

CONTINUED ON PAGE 136

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```
62015 FORA=1TONS
62020 READSK,M1,M2:IFSK=0THENPOKEV+28,PEEK(V+28)AND255-2↑(A-1)
      :GOTO62030
62025 POKE V+28,PEEK(V+28)OR2↑(A-1):POKEV+37,M1:POKEV+38,M2
62030 READCO:POKEV+38+A,CO:POKE2039+A,B(A-1)
62035 FORC=B(A-1)*64TOB(A-1)*64+63:READQ:POKEC,Q:NEXT:NEXT:RETURN
63000 DATA 0,0,0,0
63010 DATA 0,0,0,0,0,0,0,0,0,33,36,136,17,36,144,15,255,224
63015 DATA 24,28,24,96,65,6,128,73,1,96,65,6,24,28,24,15,255,224
63016 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
63018 DATA 0,0,0,0
63020 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,7,255,224,31,255,248
63025 DATA 127,255,254,255,255,255,127,255,254,31,255,248
63030 DATA 7,255,224,17,36,144,33,36,136,0,0,0,0,0,0,0,0,0
63031 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0

READY.


1 REM AMMENDMENTS TO BASIC PROGRAM
2 REM LISTING NO 2        4/3/87
3 :
4 POKE 53281,5:POKE 53280,0:S=54272:POKES+24,15
5 PRINT"[CLR,BLK]"TAB(15)"THE WINKER!"
6 PRINT "[HOME,CD]";
7 POKE S+4,0:POKE S+5,9:POKE S+6,0
8 PRINTTAB(9)"[BLK,SP,20CBMP]"
9 FORJ=1TO20:PRINTTAB(9)"[BLK,CBMN,RVS,WHT,20SP,OFF,BLK,CBMH]":NEXTJ
10 PRINTTAB(9)"[BLK,SP,20CBMV]"
12 T=2:GOSUB 62000:A=248:POKE V+21,255:X=172:Y=136:POKE V,X:POKE V+1,Y
15 POKE 198,0:POKE 650,255
19 POKE 50432,172:POKE 50433,136:POKE 50434,36:POKE 50435,248
20 POKE 788,80:POKE 789,195
22 PRINT"[HOME,14SP,HOME]BASIC STILL WORKS!"
24 A$=MID$(TI$,1,2):B$=MID$(TI$,3,2):C$=MID$(TI$,5,2)
26 FORI=1TO2000:NEXT
28 PRINT"[HOME,19SP,HOME]"A$":"B$":"C$
30 FORI=1TO2000:NEXT
32 GOTO22
62000 V=53248
62005 B(0)=248:B(1)=249:B(2)=250:B(3)=251:B(4)=252:B(5)=253:B(6)=254
      :B(7)=255
62010 NS=T:IFNS=0THENRETURN
62015 FORA=1TONS
62020 READSK,M1,M2:IFSK=0THENPOKEV+28,PEEK(V+28)AND255-2↑(A-1):GOTO62030
62025 POKE V+28,PEEK(V+28)OR2↑(A-1):POKEV+37,M1:POKEV+38,M2
62030 READCO:POKEV+38+A,CO:POKE2039+A,B(A-1)
62035 FORC=B(A-1)*64TOB(A-1)*64+63:READQ:POKEC,Q:NEXT:NEXT:RETURN
63000 DATA 0,0,0,0
63010 DATA 0,0,0,0,0,0,0,0,0,33,36,136,17,36,144,15,255,224
63015 DATA 24,28,24,96,65,6,128,73,1,96,65,6,24,28,24,15,255,224
63016 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
63018 DATA 0,0,0,0
63020 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,7,255,224,31,255,248
63025 DATA 127,255,254,255,255,255,127,255,254,31,255,248
63030 DATA 7,255,224,17,36,144,33,36,136,0,0,0,0,0,0,0,0,0
63031 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0

READY.
```

CONTINUED ON PAGE 138

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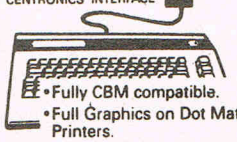

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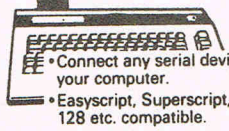

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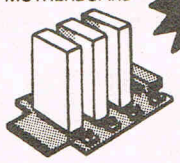

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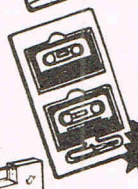

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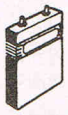

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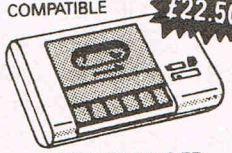

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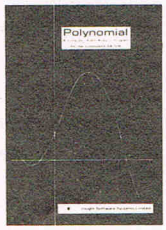

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Program

```
5 REM BASIC LOADER .... LISTING NO 3
6 :
10 REM FROM 50000 TO 50210
20 REM OR IN OTHER WORDS $C350 TO $C422
25 A=0
30 FORI=0TO209
35 READB
40 A=A+B
45 POKEI+50000,B
50 NEXTI
55 IFA<>26768THENPRINT"ERROR IN DATA - CHECK CAREFULLY.":END
60 PRINT"ALL CORRECT, NOW LOAD BASIC DEMO PROG.":END
200 DATA165,197,201,010,240,026,201,018,240,054,201
210 DATA033,240,082,201,036,240,110,076,000,196
220 DATA141,002,197,032,237,195,076,049,234,234
230 DATA234,174,000,197,224,105,208,003,076,132
240 DATA195,202,142,000,197,142,000,208,076,101
250 DATA195,032,010,196,169,018,076,101,195,000
260 DATA255,000,255,174,000,197,224,240,208,003
270 DATA076,167,195,232,142,000,197,142,000,208
280 DATA076,101,195,076,049,234,032,010,196,169
290 DATA010,076,101,195,255,174,001,197,224,064
300 DATA208,003,076,199,195,202,142,001,197,142
310 DATA001,208,075,101,195,076,049,234,032,010
320 DATA196,169,035,076,101,195,255,174,001,197
330 DATA224,210,208,003,076,228,195,232,142,001
340 DATA197,142,001,208,076,101,195,032,010,196
350 DATA169,033,076,101,195,000,174,003,197,224
360 DATA248,208,006,232,142,248,007,142,003,197
370 DATA096,202,076,245,195,173,002,197,076,082
380 DATA195,076,082,195,000,174,000,197,172,001
390 DATA197,169,000,141,004,212,169,129,141,004
400 DATA212,142,000,212,140,001,212,096,000,255

READY.


1 REM FURTHER AMENDMENTS LISTING 4
2 REM 4/3/87
3 REM
4 POKE 53281,5:POKE 53280,0:S=54272:POKES+24,15
5 PRINT"[CLR,BLK]"TAB(15)"THE WINKER!"
6 PRINT"[HOME,CD]";
7 POKE S+4,0:POKE S+5,9:POKE S+6,0
8 PRINTTAB(9)"[BLK,SP,20CBMP]"
9 FORJ=1TO20:PRINTTAB(9)"[BLK,CBMN,RVS,WHT,20SP,OFF,BLK,CBMH]":NEXTJ
10 PRINTTAB(9)"[BLK,SP,20CBMY]"
12 T=2:GOSUB 52000:A=248:POKE V+21,255:X=172:Y=136:POKE V,X:POKE V+1,Y
13 POKE V+2,X:POKE V+3,Y
15 POKE 198,0:POKE 650,255
18 POKE 51200,172:POKE 51201,136:POKE 51202,62:POKE 51203,249
19 POKE 50432,172:POKE 50433,136:POKE 50434,36:POKE 50435,248
20 POKE 788,80:POKE 789,195
22 PRINT"[HOME,14SP,HOME]BASIC STILL WORKS!"
24 A$=MID$(TI$,1,2):B$=MID$(TI$,3,2):C$=MID$(TI$,5,2)
26 FORI=1TO2000:NEXT
28 PRINT"[HOME,19SP,HOME]"A$":"B$":"C$
30 FORI=1TO2000:NEXT
32 GOTO22
```

CONTINUED ON PAGE 139

```
62000 V=53248
62005 B(0)=248:B(1)=249:B(2)=250:B(3)=251:B(4)=252:B(5)=253:B(6)=254
      :B(7)=255
62010 NS=T:IFNS=0THENRETURN
62015 FORA=1TONS
62020 READSK,M1,M2:IFSK=0THENPOKEV+28,PEEK(V+28)AND255-2↑(A-1)
      :GOTO62030
62025 POKE V+28,PEEK(V+28)OR2↑(A-1):POKEV+37,M1:POKEV+38,M2
62030 READCO:POKEV+38+A,CO:POKE2039+A,B(A-1)
62035 FORC=B(A-1)*64TOB(A-1)*64+63:READD:POKEC,D:NEXT:NEXT:RETURN
63000 DATA 0,0,0,0
63010 DATA 0,0,0,0,0,0,0,0,0,33,36,136,17,36,144,15,255,224
63015 DATA 24,28,24,96,65,6,128,73,1,96,65,6,24,28,24,15,255,224
63016 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
63018 DATA 0,0,0,0
63020 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,7,255,224,31,255,248
63025 DATA 127,255,254,255,255,255,127,255,254,31,255,248
63030 DATA 7,255,224,17,36,144,33,36,136,0,0,0,0,0,0,0,0,0
63031 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0

READY.

4

5 REM SECOND LOADER ..... LISTING NO 5
6
10 REM FROM 50768 TO 50978
20 REM OR IN OTHER WORDS $C550 TO $C722
25 A=0
30 FORI=0TO209
35 READ B
40 A=A+B
45 POKEI+50768,B
50 NEXTI
55 IFA<>26980THENPRINT"ERROR IN DATA - CHECK CAREFULLY.":END
60 PRINT"ALL CORRECT, NOW LOAD BASIC DEMO PROG.":END
200 DATA165,197,201,062,240,026,201,014,240,054
210 DATA201,030,240,082,201,039,240,110,076,000
220 DATA199,141,002,200,032,237,198,076,049,234
230 DATA234,234,174,000,200,224,105,208,003,076
240 DATA132,198,202,142,000,200,142,002,208,076
250 DATA101,198,032,010,199,169,014,076,101,198
260 DATA000,255,000,255,174,000,200,224,240,208
270 DATA003,076,167,198,232,142,000,200,142,002
280 DATA208,076,101,198,076,049,234,032,010,199
290 DATA169,062,076,101,198,255,174,001,200,224
300 DATA064,208,003,076,199,198,202,142,001,200
310 DATA142,003,208,076,101,198,076,049,234,032
320 DATA010,199,169,039,076,101,198,255,174,001
330 DATA200,224,210,208,003,076,228,198,232,142
340 DATA001,200,142,003,208,076,101,198,032,010
350 DATA199,169,030,076,101,198,000,174,003,200
360 DATA224,248,208,008,232,142,249,007,142,003
370 DATA200,096,202,076,245,198,173,002,200,076
380 DATA082,198,076,082,198,000,174,000,200,172
390 DATA001,200,169,000,141,004,212,169,129,141
400 DATA004,212,142,000,212,140,001,212,096,000

READY.
```

Program

TOOLBOX — EXTRA COMMANDS

by David McKain

Commodore 64

A collection of routines all brought together to form a mini-toolkit David McKain is going to make an impact one day. This shows great promise from a 12 year old — a real whizz-kid!

```
0 REM ************************************
1 REM *                                  *
2 REM *    TOOLBOX - EXTRA COMMANDS      *
3 REM *                                  *
4 REM *         BY DAVID MCKAIN          *
5 REM *                                  *
6 REM ************************************
10 L= 49152: PRINTCHR$(147)
20 FOR X=0 TO  27 :T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT 1000+(X*10)"OK":NEXT:PRINT CHR$(147)
80 PRINT"LIST OF COMMANDS":PRINT
90 PRINT"SYS 49152,SA,EA,NAME,DEVICE:M.C. SAVE"
100 PRINT"SYS 49229,FIRST,SECOND:COPY MEMORY"
110 PRINT"SYS 49276:CURSOR ON"
120 PRINT"SYS 49300:CURSOR OFF"
130 PRINT"SYS 49313:FIX LOAD ERROR"
140 PRINT"SYS 49324,EA:SETS TOP OF BASIC"
150 PRINT"SYS 49345:SET NORMAL BASIC START ADDRESS";
160 PRINT"SYS 49354:WAIT FOR A KEYPRESS"
170 PRINT"SYS 49365,Y,X:MOVE CURSOR TO Y,X"
180 PRINT"SYS 49400:MIX THE COLOURS"
190 PRINT"SYS 49432,B1,B2,B3,B4:BACKGROUNDS"
200 PRINT"SYS 49497,SA,N,DATA:MULTI-POKES":PRINT
210 PRINT"NOTE THESE DOWN FOR REFERENCE":PRINT"THEN PRESS A KEY"
220 SYS 49354: PRINT CHR$(147)
230 PRINT "  SAVE MACHINE CODE TO (D)ISK / (T)APE "
240 PRINT:PRINT"       PRESS ANY OTHER KEY TO QUIT"
250 GET A$:IF A$="D" THEN DV=8:GOTO290
260 IF A$="T" THEN DV=1:GOTO 290
270 IF A$="Q"THEN END
```

```
280 GOTO 250
290 SYS 49152,49152,49565,"TOOL-BOX",DV
300 FOR N=0 TO 200:SYS 49400:NEXT N:NEW
1000 DATA 165,043,072,165,044,072,165,045,072,165,046,072,032,121,000,255
1010 DATA 032,253,174,032,138,173,032,247,183,165,020,133,251,165,021,227
1020 DATA 133,252,032,253,174,032,138,173,032,247,183,165,020,133,253,172
1030 DATA 165,021,133,254,032,253,174,032,212,225,169,251,166,253,164,200
1040 DATA 254,032,216,255,104,133,046,104,133,045,104,133,044,104,133,048
1050 DATA 043,096,032,121,000,032,253,174,032,138,173,032,247,183,165,185
1060 DATA 021,133,252,165,020,133,251,032,253,174,032,138,173,032,247,008
1070 DATA 183,165,021,133,254,165,020,133,253,160,000,177,251,145,253,009
1080 DATA 200,208,249,096,120,169,140,141,020,003,169,192,141,021,003,080
1090 DATA 088,096,255,255,255,169,000,133,204,076,049,234,255,120,169,054
1100 DATA 049,141,020,003,169,234,141,021,003,088,096,173,063,003,133,057
1110 DATA 045,173,064,003,133,046,096,032,121,000,032,253,174,032,138,062
1120 DATA 173,032,247,183,165,020,133,055,165,021,133,056,096,169,001,113
1130 DATA 133,043,169,008,133,044,096,169,000,133,198,165,198,201,001,155
1140 DATA 208,250,096,032,121,000,032,253,174,032,138,173,032,247,183,179
1150 DATA 165,020,133,251,032,253,174,032,138,173,032,247,183,165,020,226
1160 DATA 168,166,251,024,032,240,255,096,169,000,133,251,168,169,216,034
1170 DATA 133,252,177,251,132,253,024,101,253,145,251,200,192,000,208,012
1180 DATA 242,230,252,165,252,201,220,208,234,096,032,121,000,032,253,234
1190 DATA 174,032,138,173,032,247,183,165,020,141,033,208,032,253,174,213
1200 DATA 032,138,173,032,247,183,165,020,141,034,208,032,253,174,032,072
1210 DATA 138,173,032,247,183,165,020,141,035,208,032,253,174,032,138,179
1220 DATA 173,032,247,183,165,020,141,036,208,169,091,141,017,208,096,135
1230 DATA 032,121,000,032,253,174,032,138,173,032,247,183,165,020,133,199
1240 DATA 251,165,021,133,252,032,253,174,032,138,173,032,247,183,165,203
1250 DATA 020,056,233,001,133,253,160,000,132,254,032,253,174,032,138,079
1260 DATA 173,032,247,183,165,020,164,254,145,251,196,253,240,006,200,225
1270 DATA 230,254,076,129,193,096,000,000,000,000,000,000,000,000,000,210
```

EXAMPLE 1

TO COPY THE CHARACTER SET TO MEMORY STARTING AT 12288

```
5 SYS49324,12288
10 POKE56334,128:POKE1,51:FORN=0TO4095STEP256
20 SYS49229,53248+N,12288+N:NEXTN:POKE53272,28
30 POKE1,55:POKE56334,129:END
```

EXAMPLE 2

WAIT FOR KEYPRESS THEN PRINT WHICH KEY WAS PRESSED

```
10 SYS49354:PRINTCHR$(PEEK(631))
```

Program

TRUE DESCENDERS

by F. Randall

Commodore 64 + MPS801 or MPS803

We have had several programs that offer the option of true descenders on Commodore printers . . . This is the best one to-date. It is small and compact and is faster in operation than any other non-hardware method we have encountered.

```
10 POKE52,100:POKE56,100:POKE53281,7:CLR
20 CL$=CHR$(147):CD$=CHR$(17)
30 PRINT CL$;CD$;CD$"    PLEASE WAIT"
40 L= 49152
50 FOR X=0 TO  19 :T=0:FOR Y=0 TO 14
60 READ A:IF A <0 OR A >255 THEN 90
70 POKE L,A:L=L+1:T=T+A:NEXT
80 READ A:T=T-(INT(T/256)*256)
90 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
100 PRINT 1000+(X*10)"OK":NEXT
110 :
120 L=25600
130 FOR X=0 TO  22 :T=0:FOR Y=0 TO 14
140 READ A:IF A <0 OR A >255 THEN 170
150 POKE L,A:L=L+1:T=T+A:NEXT
160 READ A:T=T-(INT(T/256)*256)
170 IF T<>A THEN PRINT"DATA ERROR IN LINE"2000+(X*10)"CHECKSUM <>"A:STOP
180 PRINT 2000+(X*10)"OK":NEXT
190 :
200 PRINT CL$;CHR$(18)"          EASYSCRIPT FILE PRINT          "
210 PRINT CD$;CD$"WHAT IS THE FILE NAME":INPUT F$
220 PRINT CD$;CD$"INSERT DISC, SWITCH ON PRINTER AND PRESSSPACE BAR
230 GET A$:IF A$<>" "THEN 230
240 OPEN 15,8,15:OPEN 2,8,2,"0:"+F$+",S,R":INPUT#15,E,E$:IF E<>0 THEN 320
250 OPEN 4,4: POKE 806,0: POKE 807,192
260 SYS 25648: SYS 25681
270 CLOSE 2:CLOSE 15:PRINT#4:CLOSE 4
280 PRINT:PRINT"ANOTHER FILE?"
290 GET A$:IF A$<>"Y" AND A$<>"N" THEN 310
300 IF A$="N" THEN END
310 IF A$="Y" THEN 200
320 PRINT CD$;CD$;E,E$:CLOSE 2:CLOSE 4:CLOSE 15:GOTO 280
1000 DATA 072,165,154,201,003,240,005,144,003,076,016,192,104,076,202,117
1010 DATA 241,104,141,198,192,072,138,072,152,072,173,198,192,162,004,063
1020 DATA 221,200,192,240,062,202,016,248,201,013,208,003,076,158,192,184
1030 DATA 201,032,144,023,201,145,240,019,201,146,240,015,201,128,240,128
1040 DATA 011,174,197,192,169,032,157,033,193,238,197,192,104,168,104,113
1050 DATA 170,104,076,221,237,174,199,192,240,009,024,105,008,144,001,112
1060 DATA 200,202,208,247,170,152,096,142,199,192,169,209,160,192,032,010
1070 DATA 080,192,134,034,133,035,169,249,160,192,032,080,192,134,036,060
1080 DATA 133,037,160,007,177,034,032,221,237,177,036,174,197,192,157,179
1090 DATA 033,193,238,197,192,136,016,237,076,191,192,162,003,189,205,212
1100 DATA 192,032,221,237,202,016,247,096,032,146,192,173,197,192,240,111
```

Program

```
1110 DATA 017,206,197,192,162,255,232,189,033,193,032,221,237,236,197,039
1120 DATA 192,208,244,032,146,192,169,000,141,197,192,104,168,104,170,211
1130 DATA 104,096,000,013,000,080,081,071,074,089,032,015,013,008,015,179
1140 DATA 128,184,196,196,196,252,008,015,128,252,196,196,196,184,008,031
1150 DATA 015,128,248,196,196,196,184,008,015,128,128,250,128,128,128,028
1160 DATA 008,015,128,128,252,192,192,188,008,015,128,128,128,128,128,230
1170 DATA 143,008,015,132,143,128,128,128,128,008,015,128,131,132,136,223
1180 DATA 136,136,008,015,128,128,135,136,136,136,008,015,128,128,131,224
1190 DATA 132,136,136,008,032,032,000,000,000,000,000,000,000,000,000,220
2000 DATA 142,167,002,169,000,141,168,002,200,177,251,056,233,048,048,012
2010 DATA 027,201,010,016,023,141,169,002,162,010,169,000,024,109,168,207
2020 DATA 002,202,208,250,109,169,002,141,168,002,024,144,221,174,167,191
2030 DATA 002,096,000,162,002,032,198,255,169,102,160,000,133,252,132,159
2040 DATA 251,032,207,255,145,251,230,251,208,002,230,252,032,183,255,224
2050 DATA 041,064,240,238,096,000,162,004,032,201,255,160,000,169,255,125
2060 DATA 145,251,169,102,133,252,132,251,162,005,142,170,002,169,070,107
2070 DATA 141,171,002,169,042,141,172,002,177,251,133,254,201,255,208,015
2080 DATA 005,136,016,035,048,088,201,128,208,003,076,013,101,201,013,248
2090 DATA 240,022,232,236,171,002,240,009,201,032,208,002,132,253,200,132
2100 DATA 208,217,165,253,141,173,002,208,003,140,173,002,160,000,204,001
2110 DATA 173,002,240,016,169,017,032,210,255,169,032,174,170,002,032,157
2120 DATA 210,255,202,208,250,177,251,032,210,255,204,173,002,240,003,112
2130 DATA 200,208,243,201,013,240,005,169,013,032,210,255,200,177,251,113
2140 DATA 201,255,208,006,162,003,032,201,255,096,201,032,208,001,200,013
2150 DATA 152,024,101,251,144,002,230,252,133,251,160,000,174,170,002,254
2160 DATA 206,172,002,240,003,076,113,100,162,008,169,013,032,210,255,225
2170 DATA 202,208,250,169,042,141,172,002,174,170,002,076,113,100,200,229
2180 DATA 177,251,201,042,240,025,201,058,240,021,201,163,208,007,169,156
2190 DATA 032,145,251,076,147,100,201,013,208,230,238,172,002,076,198,041
2200 DATA 100,200,162,000,177,251,201,076,240,005,232,201,082,208,210,041
2210 DATA 200,177,251,201,077,208,203,032,000,100,173,168,002,157,170,071
2220 DATA 002,024,144,192,000,000,000,000,000,000,000,000,000,000,000,106
```

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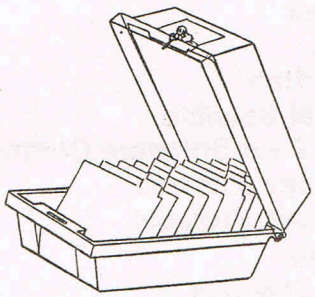

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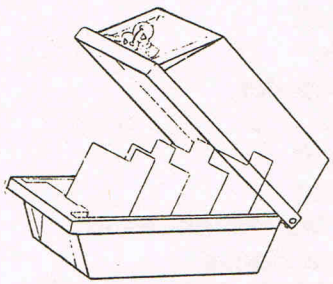

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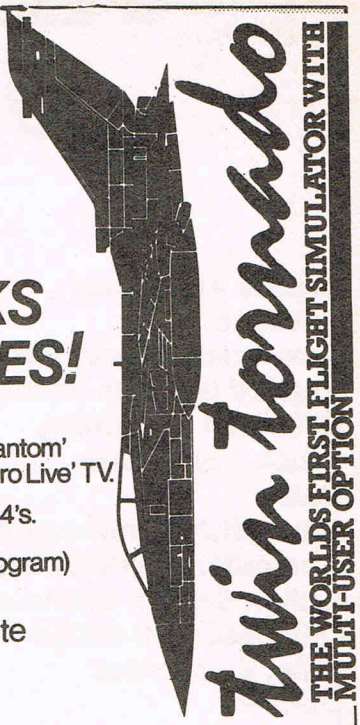

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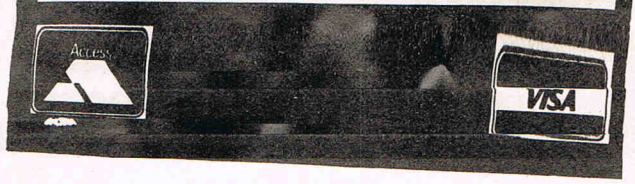

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- Course Editor allows you to arrange any of the holes from all four courses to form your own personal 18 hole golf course. (Disk)
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- *St Andrews*
- *Doral Country Club*
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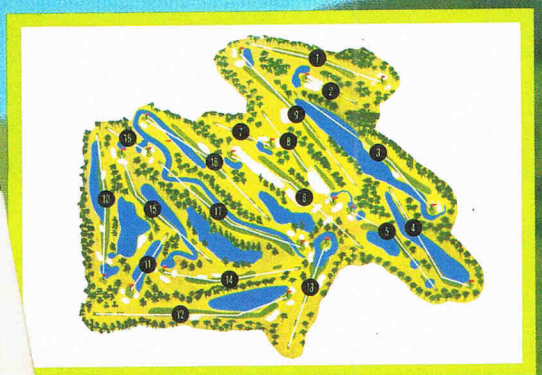

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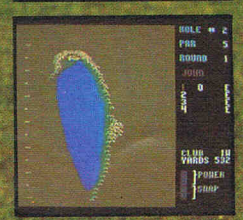

screen shots from CBM 64/128 version

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In honour of the outstanding excellence of this, the ultimate golf game, U.S. Gold have organised a competition to find the European Computer Golf Champion of 1987. In every World Class Leaderboard game there is a scoreboard. Practice your skills, test your courage and then play your best possible round on the Ultimate course – The Gauntlet – Record your best score, have it verified by an independent witness and send it to U.S. Gold. Novice, Amateur and Professional – there's a prize for each:–

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Novice: 10 free golf lessons with the "teaching professional" of your local golf club.

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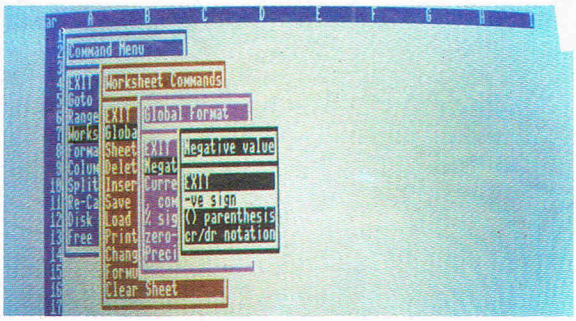

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"Companies are spending thousands of pounds on micros running Lotus 1-2-3...home users have access to similar powerful programs like Audiogenic's Swift Spreadsheet" The Guardian

"This product is so outstanding in so many ways" Commodore Horizons

"Audiogenic's Swift Spreadsheet is far and away the best of the low-cost spreadsheets for home micros" Sunderland Echo

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Commodore 128 and 64 – both versions on one cassette
Atari 800XL and 130XE – both versions on one disk
Atari 800XL and 130XE – both versions on one cassette
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Best Value Package Ever at £24.95 (BBC version £29.95)

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- Professional 80 column screen display – On Commodore 128 version only (RGB monitor required).
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